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Annual report

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FIFTH ANNUAL REPORT

OF THE

STATE BOARD OF HEALTH,

OF THE

STATE OF RHODE ISLAND,

FOR THE YEAR ENDING DECEMBER 31, 1882,

AND INCLUDING THE REPORT UPON

BIRTHS, MARRIAGES AND DEATHS IN 1881.



PROVIDENCE:

E. L. FREEMAN & CO., STATE PRINTERS.

1883.

1882  
116  
10

MEMBERS  
OF THE  
RHODE ISLAND STATE BOARD OF HEALTH,  
DECEMBER 31, 1882.

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HENRY E. TURNER, M. D., <i>Chairman</i> .....	NEWPORT COUNTY.
DAVID SMITH.....	WASHINGTON COUNTY.
ALBERT G. SPRAGUE, M. D. ....	KENT COUNTY.
GEORGE W. JENCKES, M. D.....	PROVIDENCE COUNTY.
THOMAS H. SHIPMAN, M. D.....	BRISTOL COUNTY.
SAMUEL M. GRAY, C. E.....	PROVIDENCE COUNTY.
CHARLES H. FISHER, M. D, <i>member ex-officio, and Secretary</i> .....	PROVIDENCE COUNTY.

26526

*To the Honorable the General Assembly of the State of Rhode Island.*

Herewith is respectfully presented the Fifth Annual Report of the State Board of Health, in compliance with sec. 9, chapter 83, of the Public Statutes.

The Report is for the year ending December 31st, 1882, and presents a part of the general proceedings of the Board and of the work performed under its supervision ; and is wholly included in the report of the Secretary, which will be found in the following pages, and is respectfully submitted.

HENRY E. TURNER, Chairman.

CHAS. H. FISHER, Secretary.

*May 3rd, 1883.*

92352

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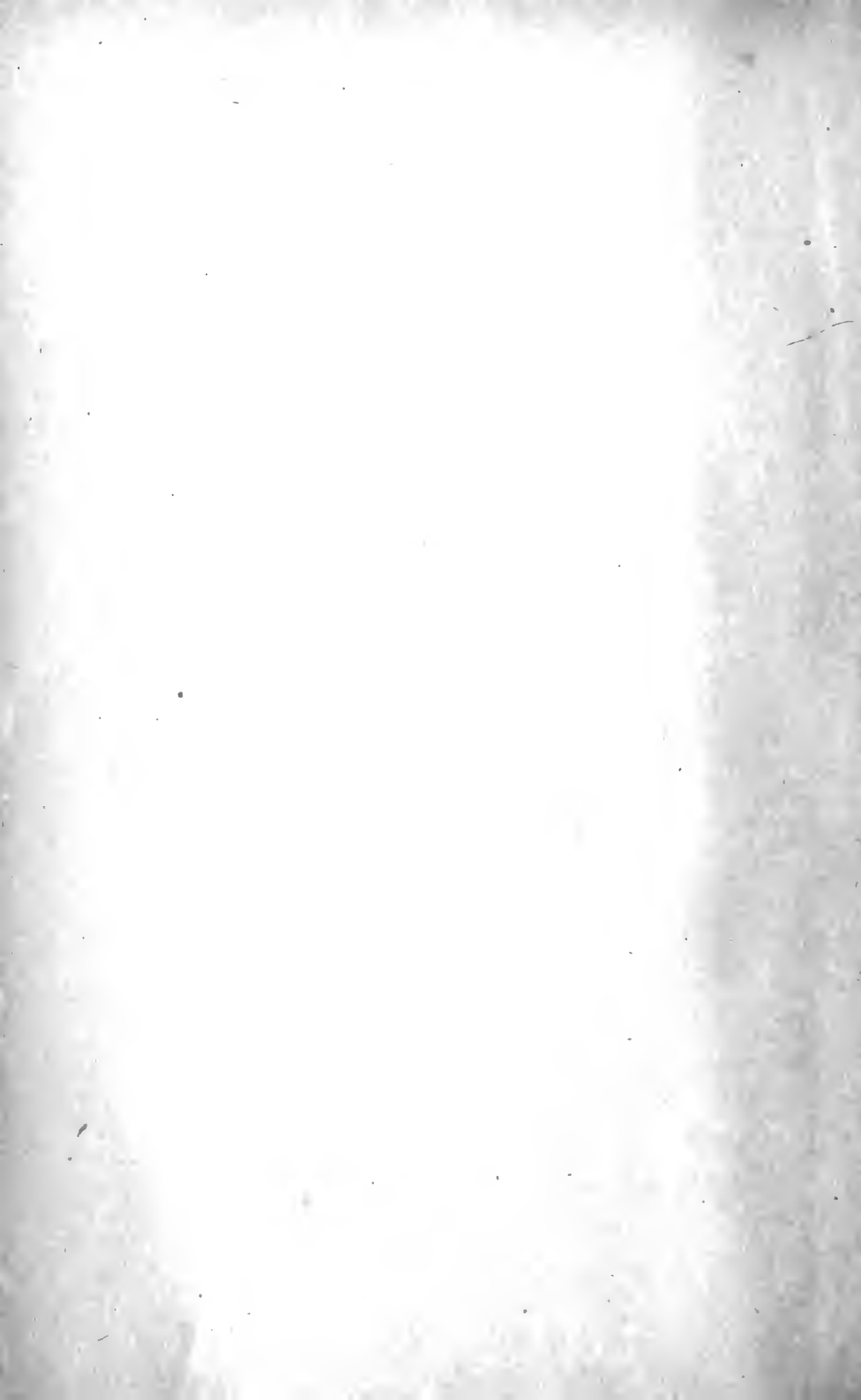
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The Sanitarian	New York, N. Y.
The Sanitary Engineer	"
The Hydraulic and Sanitary Plumber	"
The Independent Practitioner	"
The Archives of Medicine	"
The New England Medical Monthly	Sandy Hook, Ct.
The Popular Science News	Boston, Mass.

The Medical Bulletin .....	Philadelphia, Pa.
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The Medical Register.....	"
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The Medical Chronicle.....	Baltimore, Md.
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The Medical Herald .....	Louisville, Ky.
The Decorators' Gazette and Plumber.....	London, Eng.
The National Board of Health Bulletin.....	Washington, D. C.
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## REPORT OF THE SECRETARY.

---

*To the Honorable General Assembly and the Members of the State Board of Health.*

The Secretary of the Board herewith respectfully submits his Fifth Annual Report.

It will give an account of some of the general proceedings of the Board for the year ending December 31st, 1882, and also the results of his work in the Department of Vital Statistics, and in the Department of Public Health during the same year.

### MEMBERSHIP OF THE BOARD.

Two vacancies in the membership of the Board have been filled during the year. Dr. David King, one of the original members and Chairman of the Board during the whole period of his connection with it, had been in failing health for many months, and early in March his naturally vigorous constitution gave way rapidly to the destructive influence of the maladies with which he was afflicted. The vacancy occasioned by his decease was filled during the January Session of the General Assembly by the appointment of Dr. Henry E. Turner, city physician of Newport, by His Excellency the Governor, with the approval of the Senate.

A vacancy caused by the resignation of Dr. O. C. Wiggin during the previous year, was filled at the May Session of the General Assembly, by the appointment, in the same way as in the previous case, of Samuel M. Gray, city engineer of Providence.

### MEETINGS OF THE BOARD.

No specially called meetings were held during the year, no circumstances occurring which seemed to require the holding of a special meeting.

At the regular meetings many questions appertaining to the duties of the Board and in relation to measures for the preservation of the public health and the prevention of sickness were discussed, and by the interchange of thought and suggestion, and relation of experience and observation, many points in regard to general sanitation were elucidated.

No communications were received by the Board during the year from any parties in the State desiring any special action on the part of the Board, unless one from citizens of Newport city in relation to the presence of small pox and the dangers arising therefrom, and one from the Secretary of State in relation to the unsanitary condition of the State House, be excepted.

In relation to smallpox in Newport city, it may be as well to state here that no action on the part of the Board seemed to be necessary, as representations were made by responsible persons that the matter was receiving proper attention from the authorities in that city, and as the Board has only advisory powers and can act only through legally constituted officers in the cities and towns.

All other communications directed to the Secretary were attended to by him personally and not requiring any action on the part of the Board. Cases of nuisance reported to the Secretary have largely been of a private character, affecting a limited number of families or small neighborhoods, and have all been abated upon a courteous representation by the Secretary of the dangers arising therefrom, with an earnest solicitation of their removal or abatement.

Two instances only have occurred during the year in which a considerable part of the inhabitants of any town have been subjected to serious discomfort or danger, and recourse to the Town Council was necessary in order to accomplish the needed change. .

A number of communications from without the State were brought before the Board at the different meetings, and received proper attention, but with one exception these communications were of such a character as to make them of but little interest to the general public, and therefore need not occupy space by being included in this report.

#### QUARTERLY MEETING.

At a meeting of the Board held on THURSDAY, APRIL 6, 1882, Henry E. Turner, M.D., the newly elected member from Newport County, presented his credentials of appointment, and was heartily

welcomed by the older members of the Board. Before the adjournment of the meeting, Dr. Turner was elected chairman in the place of Dr. David King, deceased.

At the same meeting, after remarks in appreciation of Dr. King, the following resolutions were unanimously adopted :

WHEREAS, Dr David King, one of the original members of this Board and its chairman during the whole period of his connection with it, has recently deceased, therefore,—

*Resolved*, That by the death of Dr. King the Rhode Island State Board of Health loses one of its most distinguished members, whose punctual attendance upon its meetings and warm interest in all measures promotive of public health, attested his sincere regard for sanitary science and earnest desire for the best success of the Board.

*Resolved*, That we, his associates on this Board, hereby testify to his unvarying gentlemanly deference, combined with respectful dignity and courtesy in the discharge of his duties as chairman of the Board, and to his careful and deliberate consideration of all sanitary questions.

*Resolved*, That we deeply deplore the event of his decease, and the sudden severance of his fraternal association with us; and hereby express our sincere sympathy with the family of the deceased in their great bereavement;

*Resolved*, That a copy of this resolution be forwarded to the family of Dr. King, and also entered on the record of the Board.

#### ANNUAL MEETING.

The annual meeting of the Board occurs on the first Wednesday in July in every year, at which time the officers of the Board for the ensuing year are chosen.

The following are the officers chosen for the year ending July 4, 1883, or until their successors are elected:

HENRY E. TURNER, M.D., Newport, Chairman.

CHARLES H. FISHER, M.D., Providence, Secretary.

HENRY E. TURNER, M.D., Newport, Auditor.

The committees appointed at previous annual meetings having neglected to report upon the subjects respectively referred to them, the appointment of committees was indefinitely postponed.

At this meeting of the Board, WEDNESDAY, JULY 5, 1882, Samuel M. Gray, City Engineer of Providence, appointed by the Governor a member of the Board for Providence county for six years from July 1st, 1882, appeared, and was cordially greeted by the other members of the Board then present.

At this meeting the Secretary called attention to a movement on the part of the National Board of Health, for the purpose of making investigations upon the nature of the poison that causes malarial diseases, and to the assurance given by the Secretary to all parties concerned in the movement, of the active co-operation of the Rhode Island State Board of Health in every measure in which they could be of any assistance.

The Board approved of the action of the Secretary, and authorized him to take such steps in furtherance of the object as in his judgment seemed to be of reasonable advantage.

The following circular, issued from the office of the State Board of Health, &c., in Massachusetts, will give an idea of what was designed to be accomplished, and in part the mode of procedure in the investigation:

HEALTH DEPARTMENT, STATE HOUSE.

Boston, 20th June, 1882.

DEAR SIR,—

The National Board of Health has decided to undertake certain investigations upon the nature of the malarial poison, and more especially to attempt to determine the correctness of the observations published in Europe within the last two years with regard to the existence of a definite germ or parasite connected with the disease.

It is proposed to repeat the experiments of Klebs and Tommasi-Crudelli, as well as those of Sternberg, as to the effects upon animals of materials collected from or near malarial localities, and to compare these with similar material collected from localities as yet free from malarial diseases.

It is also desired to investigate blood, with a view to prove or disprove the results announced by Eklund and Laveran.

The National Board proposes to undertake the laboratory work of the investigation, including culture experiments, and experiments upon animals. This work will, for the present at least, be carried on at Boston, in the laboratory of Dr. W. S. Bigelow, by W. F. Whitney, M.D., Curator of the Warren Anatomical Museum.

The State Boards of Health of Connecticut, Massachusetts, Rhode Island, and New York, have agreed to furnish the materials for this research, and to collect information in their respective States, as to the conditions appearing to influence local outbreaks of the disease.

It is especially desired that early notice of the appearance of malarial fever in districts where it was previously unknown may be at once given to this Board.

Will you kindly aid in the investigation by furnishing answers to the subjoined questions:

1. Has malarial fever in any of its forms prevailed in your town or vicinity during the past year, or does it now prevail?

2. If so, please state—

- (a.) The number of cases of which you are cognizant.
- (b.) At what season of the year the disease has prevailed.
- (c.) Whether the persons so affected reside near any pond, reservoir or stream, and if so, how near and in what direction?
- (d.) How many of the persons included in answers to questions *a*, *b* and *c*, have had malarial fever in previous years, and how many have been exposed to malaria in other places?
- (e.) Can the disease in any case be traced to the use of drinking-water from malarial districts?

3. Has malarial fever been known in your vicinity in previous years?

4. Did it exist the year previous to its appearance in your town in any town nearly adjacent. If so, please state where, and how far away?

5. If malarial fever has ceased to prevail during this or any previous year, state any causes which may appear to you sufficient to explain this relief.

6. What other diseases have been endemic or epidemic in the town at any time during the year?

It is also desired that the information sought in this circular should be furnished at any subsequent time, if the present condition with regard to the existence or non-appearance of malarial fever should change. It is not intended by either the National Board or the State Board to publish at present the localities where malarial fever exists.

It was intended that this circular, or one similar, should be sent to physicians in the greater number of the towns and cities in each of the several States.

It may be observed here that the Secretary of the Rhode Island State Board of Health had in a large measure anticipated the inquiries contained in the list of questions proposed in the circular, the physicians of the several towns in the State having been requested in circulars sent by the Secretary of the Board, and also at his suggestion by Dr. C. V. Chapin, to make reply to similar inquiries contained therein. A summary of these replies was therefore ready for immediate use.

The work, however, of the National Board of Health, which promised so much in the direction of investigating the causes of malarial fevers, was frustrated by the failure of Congress to appropriate, for its special use, funds sufficient for that very desirable purpose.

## QUARTERLY MEETING.

At a meeting held WEDNESDAY, OCT. 4, 1882, a very considerable amount of routine business was done, a report of which, however, would be of little interest to the average reader. At this meeting the report of S. M. Gray and C. H. Fisher to His Excellency Gov. Littlefield, in relation to the unsanitary condition of the State House in Providence was approved, and they were authorized to propose, as the recommendation of the Board, such changes and improvements in drainage and ventilation as the condition of the premises seemed to require.

It may, perhaps, seem that the results of the meetings are rather meagre. This is not true in regard to the results of the interchange of opinions, and presentation of modes of procedure in various kinds of sanitary work, and in the various details of official action upon matters brought before the Board. But it is to some extent true in regard to the accomplishment of systematic and persistent investigations into the causes of disease, or causes of any one disease, which the Board may have desired to make, and that not because of any disinclination of the Board to direct any such investigation, but from the fact that no means for prosecuting such investigations are available. The three hundred dollars at the command of the Board are barely sufficient with the strictest economy to cover the indispensable current expenses.

And, in regard to investigations, it may be further observed that the time of the Secretary is occupied at least an average of seven hours a day personally throughout the year in the various departments of his duties, besides assistance which he employs at his private expense to an amount of not less than one hundred dollars, representing not less than an average of two hours a day.

It will be seen that neither the Board nor the Secretary can institute investigations, requiring as they do for definite results, careful, continuous, patient and intelligent labor, by experts in biology, chemistry, microscopy, &c., without the employment of persons for expert work, or some considerable part of the routine work of the Secretary.

It may be mentioned that the Secretary has taken time during the year to write some articles for popular reading, having practical application to existing circumstances, and published in the newspaper press.

The following are some of the subjects which have been presented to the public through that medium:

Plumbing defects, and the results.

Vaccination vs. Small Pox.

Malarial Fevers, and their avoidance.

Typhoid Fever.

The dangers of Gasoline, Kerosene, and Gas Stoves, and how avoided.

Ventilation of work and sleeping-rooms.

## MEDICAL CORRESPONDENTS.

1882.

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Dr. M. P. Arnold,	Dr. J. H. Eldridge,	Dr. A. News,
“ H. Arnold,	“ R. P. Eddy,	“ A. Potter,
“ D. H. Batchelder,	“ D. M. Edwards,	“ F. A. Rankin,
“ C. H. Barnard,	“ G. R. Fisher,	“ A. A. Saunders,
“ J. C. Budlong,	“ L. F. C. Garvin.	“ T. H. Shipman,
“ Otis Bullock,	“ C. H. Hadley,	“ A. G. Sprague,
“ W. J. Burge,	“ G. B. Haines,	“ F. B. Smith,
“ A. B. Briggs,	“ G. A. Harris,	“ W. J. Smith,
“ E. G. Carpenter,	“ G. W. Jenckes,	“ G. H. Stanley,
“ J. S. Chipman,	“ A. E. Kemp,	“ E. P. Stimson,
“ G. L. Church,	“ D. O. King,	“ H. E. Turner,
“ E. P. Clark,	“ L. D. McLean,	“ J. O. Whitney,
“ H. C. Crandall,	“ A. A. Mann,	“ John Winsor.

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REPORT ON THE REGISTRATION  
OF  
BIRTHS, MARRIAGES AND DEATHS,  
IN THE  
STATE OF RHODE ISLAND,  
FOR THE  
YEAR ENDING DECEMBER 31, 1881.  
ALSO  
COMMENTS UPON AND COMPARISONS OF THE SAME EVENTS FOR  
VARIOUS PERIODS FROM 1852 TO 1881, INCLUSIVE.  
BY CHARLES H. FISHER, M. D.,  
STATE REGISTRAR OF VITAL STATISTICS.

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T A B L E I.  
GENERAL ABSTRACT OF BIRTHS, MARRIAGES AND DEATHS,  
IN THE STATE OF RHODE ISLAND DURING THE YEAR  
1881.

TOWNS.	BIRTHS, 1881.										MARRIAGES, 1881.										DEATHS, 1881.									
	Population, 1880.			SEX.		PARENTAGE.				NATIVITY.				SEX.		PARENTAGE.		Ages Given.		Aggregate Age in yrs.		Average Age in years.		Aggregate Age, in years of all.		Average Age in years of all.				
						Male.		Female.																				American.		Foreign.
	Whole Number.	Male.	Female.	American.	Foreign.	Am. Father.	For. Father.	Am. Mother.	For. Mother.	Whole Number.	American.	Foreign.	Am. male.	For. female.	Am. female.	Whole Number.	Males.	Females.	American.	Foreign.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
Barrington.....	1,359	4	6	9	3	1	.....	.....	.....	14	14	.....	.....	.....	15	9	6	9	6	9	6	428	218	47.56	36.33	646	43.07			
Bristol.....	6,028	67	80	66	54	13	14	13	14	51	34	6	5	6	112	63	49	80	32	63	49	2,307	1,359	39.79	39.98	4,466	39.87			
Warren.....	4,067	79	43	36	33	35	4	7	.....	56	30	17	6	3	77	44	33	44	33	44	33	1,347	1,240	30.61	37.57	2,557	33.59			
Bristol County....	11,394	239	114	125	108	92	18	21	21	121	78	23	11	9	204	116	88	133	71	116	88	4,282	3,417	36.91	38.83	7,699	37.74			
Coventry.....	4,519	104	58	46	56	41	3	4	4	32	29	2	1	.....	108	56	52	96	12	56	52	2,225	2,044	39.73	39.31	4,269	39.53			
East Greenwich....	2,887	67	32	35	36	23	3	5	4	49	24	14	8	3	57	24	33	38	19	24	33	829	1,143	34.54	34.64	1,972	34.59			
West Greenwich....	1,018	31	17	14	27	1	2	1	2	7	7	.....	.....	.....	15	7	8	14	1	7	8	419	237	59.86	29.62	656	43.73			
Warwick.....	12,164	263	138	125	109	105	22	27	27	102	48	48	3	3	159	81	78	75	84	80	77	2,295	2,420	28.69	31.43	4,715	30.03			
Kent County.....	20,588	465	245	220	228	170	30	37	37	190	108	64	12	6	339	168	171	223	116	167	170	5,768	5,844	34.54	34.38	11,612	34.46			
Jamestown.....	459	11	6	5	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	7	3	4	7	.....	3	4	82	191	27.33	47.75	273	39.00			
Little Compton....	1,202	9	4	5	9	.....	.....	.....	.....	11	10	.....	.....	1	21	12	9	19	2	12	9	914	561	76.17	62.33	1,475	70.24			
Middletown.....	1,139	24	9	15	22	1	1	.....	.....	5	4	1	.....	.....	15	11	4	14	1	11	4	323	248	29.36	62.00	571	38.07			
New Shoreham....	1,203	20	10	10	20	.....	.....	.....	.....	3	3	.....	.....	.....	19	12	7	19	.....	10	5	372	138	37.20	27.60	510	34.00			
New Portsmouth....	1,979	40	18	22	27	8	2	3	3	9	8	.....	.....	1	25	12	13	22	3	12	12	545	645	45.42	53.75	1,190	40.58			
Tiverton.....	2,505	52	33	19	36	12	4	.....	.....	24	21	.....	1	2	40	20	20	26	14	20	20	586	985	29.30	49.25	1,571	39.27			
Newport Co. Towns.	8,487	156	80	76	125	21	3	7	7	52	46	1	1	4	127	70	57	107	20	68	54	2,822	2,768	41.50	51.26	5,590	45.82			
Newport City.	15,633	349	175	174	160	109	41	39	39	117	69	22	18	8	253	121	132	154	99	120	131	4,448	5,175	37.07	39.50	9,623	38.34			



TABLE II.—BIRTHS, 1881.

*Arranged by Months, Sexes and Divisions of the State.*

MONTHS.	SEX.	DIVISIONS OF THE STATE.							
		Whole State.	Bristol County.	Kent County.	Newport County.	Newport City.	Providence County.	Providence City.	Washington County.
January . . . .	Males . . . .	272	9	13	10	21	100	106	13
	Females . .	254	10	10	10	14	96	100	14
	Total . . . .	526	19	23	20	35	196	206	27
February . . .	Males . . . .	266	8	25	11	12	87	112	11
	Females . .	218	6	14	8	15	68	96	11
	Total . . . .	484	14	39	19	27	155	208	22
March . . . . .	Males . . . .	282	10	14	5	20	95	120	18
	Females . .	242	8	16	3	15	84	100	16
	Total . . . .	524	18	30	8	35	179	220	34
April . . . . .	Males . . . .	273	8	17	6	7	92	125	18
	Females . .	260	14	21	5	13	84	107	16
	Total . . . .	533	22	38	11	20	176	232	34
May . . . . .	Males . . . .	280	8	23	7	15	94	111	22
	Females . .	288	14	18	7	14	93	130	12
	Total . . .	568	22	41	14	29	187	241	34
June . . . . .	Males . . . .	280	9	18	4	14	83	133	19
	Females . .	280	13	17	7	12	97	124	10
	Total . . . .	560	22	35	11	26	180	257	29
July . . . . .	Males . . . .	312	12	25	4	15	123	115	18
	Females . .	297	10	23	3	13	123	110	15
	Total . . . .	609	22	48	7	28	246	225	33

TABLE II.—BIRTHS, 1881.—*Continued.*

MONTHS.	SEX.	Whole State.	DIVISIONS OF THE STATE.						
			Bristol County.	Kent County.	Newport County.	Newport City.	Providence County.	Providence City.	Washington County.
August . . .	Males . . .	284	12	22	2	8	103	117	20
	Females . .	281	9	14	6	13	108	116	15
	Total . . .	565	21	36	8	21	211	233	35
September . .	Males . . .	310	9	24	4	12	114	132	14
	Females . .	262	8	19	7	10	92	116	10
	Total . . .	572	17	44	11	22	206	248	24
October . . . .	Males . . .	309	12	19	7	18	107	140	6
	Females . .	283	10	19	7	20	87	129	11
	Total . . .	592	22	38	14	38	194	269	17
November . .	Males . . .	325	7	21	9	16	122	139	11
	Females . .	293	11	20	5	19	116	105	17
	Total . . .	518	18	41	14	35	238	244	28
December . .	Males . . .	305	10	23	11	17	103	112	29
	Females . .	305	12	29	8	16	107	108	25
	Total . . .	610	22	52	19	33	210	220	54
Whole Year.	Males . . .	3,498	114	245	80	175	1,223	1,462	199
	Females . .	3,263	125	220	76	174	1,155	1,341	172
	Total . . .	6,761	239	465	156	349	2,378	2,803	371

TABLE III.—PLURALITY BIRTHS, 1881.

ARRANGED BY MONTHS AND DIVISIONS OF THE STATE, AND SHOWING THE NATIVITY OF THE PARENTS.

MONTHS.	Number of Cases.	SEX.	No. of Children.	DIVISIONS OF THE STATE.						NATIVITY OF THE PARENTS.														
				Bristol County.	Kent County.	Newport Co., Towns.	Newport City.	Providence Co., Towns.	Providence City.	Washington Co.	American.	Irish.	French.	English.	Scotch.	German.	American father.	English father.	American mother.	Irish father.	Scotch mother.	German father.	Br. Am. father.	Irish mother.
January . . . . .	7	Males..... <sup>4</sup> Females..... <sup>10</sup>	14	..	..	1	..	3	2	1	5	..	..	..	..	..	1	..	..	..	..	..	..	..
February . . . . .	5	Males..... <sup>5</sup> Females... <sup>5</sup>	10	1	..	..	..	3	1	..	2	1	1	..	..	..	..	..	..	..	1	..	..	..
March.....	3	Males..... <sup>3</sup> Females..... <sup>3</sup>	6	2	..	..	..	1	..	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..
April.....	6	Males..... <sup>10</sup> Females.... <sup>2</sup>	12	..	..	..	..	1	4	1	1	2	1	1	..	..	1	..	..	..	..	..	..	..
May . . . . .	3	Males..... <sup>4</sup> Females.... <sup>2</sup>	6	..	..	..	..	2	..	1	1	1	..	..	..	..	..	1	..	..	..	..	..	..
June.....	4	Males..... <sup>2</sup> Females.... <sup>6</sup>	8	..	..	..	..	1	3	..	1	1	1	..	..	..	1	..	..	..	..	..	..	..
July.....	*9	Males..... <sup>8</sup> Females.... <sup>11</sup>	19	..	..	..	..	6	3	..	4	2	2	..	..	..	..	1	..	..	..	..	..	..
August. . . . .	5	Males..... <sup>7</sup> Females.... <sup>3</sup>	10	1	..	..	..	3	1	..	2	..	1	1	..	..	1	..	..	..	..	..	..	..
September . . . . .	4	Males..... <sup>6</sup> Females.... <sup>2</sup>	8	..	..	..	..	2	2	..	..	1	1	1	..	1	..	..	..	..	..	..	..	..
October. . . . .	6	Males..... <sup>7</sup> Females.... <sup>5</sup>	12	..	1	..	2	..	3	..	4	1	..	..	..	..	1	..	..	..	..	..	..	..
November . . . . .	7	Males..... <sup>7</sup> Females.... <sup>7</sup>	14	..	..	..	..	3	3	1	3	2	..	..	..	..	..	..	..	..	..	..	1	..
December.....	5	Males..... <sup>7</sup> Females.... <sup>3</sup>	10	..	1	..	..	2	1	1	1	1	1	..	..	1	..	..	1	1	..	..	..	..
Whole Year . . . . .	64	Males..... <sup>70</sup> Females... <sup>59</sup>	129	2	4	1	2	27	23	5	26	12	9	1	1	1	3	4	2	1	1	1	1	1

\* One case of triplets in July—one male, two females; of French parentage.

TABLE IV.—MARRIAGES, 1881.

*Arranged by Months and Divisions of the State.*

MONTHS.	Whole State, 1881.	DIVISIONS OF THE STATE.							Whole State, 1880.
		Bristol County.	Kent County.	Newport County, Towns.	Newport City.	Providence County, Towns.	Providence City.	Washington County.	
January .. . . . .	250	10	18	5	5	75	117	20	205
February.. . . . .	247	4	15	5	10	82	112	19	209
March.... . . . .	174	8	14	3	9	36	81	23	160
First Quarter....	671	22	47	13	24	193	310	62	574
April..... . . . .	227	13	13	1	10	76	95	19	228
May.... . . . .	257	10	20	5	5	88	114	15	243
June .... . . . .	272	12	26	3	6	78	131	16	234
Second Quarter...	756	35	59	9	21	242	340	50	705
July.... . . . .	157	7	5	1	4	48	88	4	209
August .... . . . .	188	13	20	4	10	62	69	10	166
September .... . .	204	9	12	8	14	61	81	19	255
Third Quarter....	549	29	37	13	28	171	238	33	630
October..... . . . .	276	14	8	5	18	77	134	20	259
November..... . .	294	13	22	7	17	98	114	23	344
December..... . .	204	8	17	5	9	79	66	20	257
Fourth Quarter...	774	35	47	17	44	254	314	63	860
Whole year ....	2,750	121	190	52	117	860	1,202	208	2,769

TABLE V.—AGES OF PERSONS MARRIED, 1881.

AGES OF MEN.	AGES OF WOMEN.												Whole Number of Males.
	Under 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.	50 to 55.	55 to 60.	60 to 65.	65 to 70.	Not Stated.	
Under 20.....	55	22	....	....	1	..	..	..	..	..	..	..	78
20 to 25.....	316	591	102	11	2	1	1	..	..	..	..	..	1,024
25 to 30.....	114	385	261	45	12	..	..	..	..	1	..	..	818
30 to 35.....	22	107	121	67	21	4	2	..	..	..	..	..	344
35 to 40.....	5	51	53	42	30	9	2	..	..	..	..	..	192
40 to 45.....	6	16	29	23	21	15	5	1	..	..	..	..	116
45 to 50.....	2	9	15	8	7	18	8	1	3	..	1	..	72
50 to 55.....	1	1	3	7	6	7	6	5	1	..	..	..	37
55 to 60.....	....	2	6	....	4	5	1	3	1	..	..	..	22
60 to 65.....	....	....	2	....	....	7	6	5	4	2	..	..	26
65 to 70.....	....	....	....	....	2	2	2	2	2	1	2	..	13
70 to 75.....	....	....	....	....	....	2	1	..	1	1	..	..	5
75 to 80.....	....	....	....	..	..	..	1	..	..	..	..	..	1
80 to 85.....	....	....	....	....	..	1	..	..	..	..	..	..	1
Not Stated.....	....	....	....	....	....	..	..	..	..	..	..	1	1
Whole No. Females.	521	1184	592	203	106	71	35	17	12	5	3	1	2,750

TABLE VI.—DEATHS, 1881.

*Arranged by Months, Sexes, and Divisions of the State.*

MONTHS.	SEX.	Whole State.	DIVISIONS OF THE STATE.						
			Bristol County.	Kent County.	Newport County, Towns.	Newport City.	Providence County, Towns.	Providence City.	Washington County.
January ...	Males....	205	12	9	5	6	75	85	13
	Females..	234	8	22	7	12	74	105	6
	Total....	439	20	31	12	18	149	190	19
February ...	Males....	197	12	10	8	9	63	82	13
	Females..	199	6	16	2	7	78	82	8
	Total....	396	18	26	10	16	141	164	21
March.....	Males....	192	9	5	9	10	68	84	7
	Females..	209	11	6	7	18	60	89	18
	Total....	401	20	11	16	28	128	173	25
April .....	Males....	203	10	15	3	11	60	89	15
	Females..	214	7	12	2	9	63	111	10
	Total....	417	17	27	5	20	123	200	25
May .....	Males....	207	3	18	7	10	63	100	6
	Females..	203	6	12	10	12	60	95	8
	Total....	410	9	30	17	22	123	195	14
June.....	Males....	162	8	13	3	6	53	73	6
	Females..	182	7	13	4	5	56	89	8
	Total....	344	15	26	7	11	109	162	14
July.....	Males....	242	8	19	10	18	80	97	10
	Females..	192	2	12	4	6	64	99	5
	Total....	434	10	31	14	24	144	196	15
August....	Males....	288	17	23	5	14	92	122	15
	Females..	288	11	22	5	20	117	102	11
	Total....	576	28	45	10	34	209	224	26
September..	Males....	193	13	10	3	13	70	72	12
	Females..	221	8	8	4	19	87	88	7
	Total....	414	21	18	7	32	157	160	19
October....	Males....	226	12	9	7	9	84	89	16
	Females..	200	5	18	4	9	69	73	22
	Total....	426	17	27	11	18	153	162	38
November..	Males....	168	7	14	6	6	50	73	12
	Females..	206	10	21	3	9	72	80	11
	Total....	374	17	35	9	15	122	153	23
December...	Males....	184	5	23	4	9	52	81	10
	Females..	201	7	9	5	6	71	85	18
	Total....	385	12	32	9	15	123	166	28
Whole Year.	Males....	2,467	116	168	70	121	810	1,047	135
	Females..	2,549	88	171	57	132	871	1,098	132
	Total....	5,016	204	339	127	253	1,681	2,145	267

TABLE VII.—DEATHS, 1881.

*Showing the number of each Sex, in each Period of Life, in every Town and Division of the State; also the ratio of Deaths to Population.*

TOWNS AND DIVISIONS OF THE STATE.	POPULATION, 1880.		DEATHS, 1881.			Under 1 year.	1 and under 2.	2 and under 3.
	Whole Number.	SEX.	Per cent to Population.	Whole Number.	SEX.			
Barrington .....	1,359	Males....	1.13	15	9	1	1	..
		Females..			6	...	...	..
Bristol .....	6,028	Males....	1.85	112	63	12	2	2
		Females..			49	10	1	1
Warren .....	4,007	Males....	1.92	77	44	13	4	1
		Females..			33	1	1	2
BRISTOL COUNTY....	11,394	Males....	1.79	204	116	26	7	2
		Females..			88	11	2	3
Coventry .....	4,519	Males....	2.39	108	56	9	2	1
		Females..			52	9	...	..
East Greenwich... ..	2,887	Males....	1.97	57	24	5	4	..
		Females..			33	4	2	1
West Greenwich.....	1,018	Males....	1.47	15	7	2	...	..
		Females..			8	2	...	..
Warwick .....	12,164	Males....	1.31	159	81	21	1	2
		Females..			78	12	2	3
KENT COUNTY.....	20,588	Males....	1.65	339	168	37	7	3
		Females..			171	27	4	4
Jamestown .....	459	Males....	1.52	7	3	...	...	1
		Females..			4	...	...	..
Little Compton.....	1,202	Males....	1.75	21	12	...	...	..
		Females..			9	...	...	..
Middletown.....	1,139	Males....	1.32	15	11	1	2	..
		Females..			4	...	...	..
New Shoreham.....	1,203	Males....	1.56	19	12	1	1	..
		Females..			7	2	...	..
Portsmouth .....	1,979	Males....	1.26	25	12	2	...	1
		Females..			13	1	...	..
Tiverton .....	2,505	Males....	1.59	40	20	7	1	1
		Females..			20	1	...	..
TOWNS, NEWPORT CO.	8,487	Males....	1.49	127	70	11	4	3
		Females..			57	4	...	..
NEWPORT CITY .....	15,693	Males....	1.61	253	121	22	3	2
		Females..			132	20	3	..

TABLE VII.—DEATHS, 1881.—Continued.

3 and under 4.	4 and under 5.	5 and under 10.	10 and under 15.	15 and under 20.	20 and under 30.	30 and under 40.	40 and under 50.	50 and under 60.	60 and under 70.	70 and under 80.	80 and under 90.	90 and over.	Not stated.
....	1	....	....	....	....	....	1	....	1	2	2	....	....
....	....	1	1	....	1	1	....	1	....	....	1	....	....
2	....	2	1	1	3	5	6	7	4	11	4	1	....
1	....	2	....	1	3	5	3	4	6	6	6	....	....
....	1	2	3	1	2	....	1	3	5	7	2	....	....
....	....	2	3	2	5	4	2	2	2	4	3	....	....
2	2	4	4	2	5	5	8	10	10	20	8	1	....
1	....	5	4	3	9	10	5	7	8	10	10	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....
3	....	4	2	1	3	2	3	7	4	7	4	4	....
1	....	2	3	6	6	4	2	1	4	3	7	4	....
....	....	3	....	....	....	....	1	4	3	1	3	....	....
1	3	2	1	1	2	1	4	3	1	4	2	1	....
....	....	....	....	....	....	....	....	....	....	....	5	....	....
1	....	1	....	1	....	....	....	1	....	2	....	....	....
2	1	10	1	2	7	4	5	6	5	10	2	1	1
5	3	2	7	3	6	5	6	3	9	5	3	3	1
5	1	17	3	3	10	6	9	17	12	18	14	5	1
8	6	7	11	11	14	10	12	8	14	14	12	8	1
....	....	....	....	....	....	1	1	....	....	....	....	....	....
....	....	....	....	....	....	2	....	1	1	....	....	....	....
....	....	....	....	....	....	....	....	2	1	3	4	2	....
....	....	....	....	....	....	1	2	....	2	2	2	....	....
1	1	....	....	1	1	....	....	1	1	2	....	....	....
....	....	....	....	....	....	1	....	....	2	....	1	....	....
....	1	....	1	....	1	....	1	....	2	1	1	....	2
....	....	1	....	....	....	....	....	....	2	....	....	....	2
....	....	....	....	....	....	1	1	2	3	1	1	....	....
1	....	....	....	....	2	1	....	1	....	2	4	....	1
....	....	....	1	1	....	1	1	1	4	2	....	....	....
....	....	2	....	1	1	1	5	....	1	6	1	1	....
1	2	....	2	2	2	3	4	6	11	9	6	2	2
1	....	3	....	1	3	6	7	2	8	10	8	1	3
....	....	....	....	....	....	....	....	....	....	....	....	....	....
4	5	4	....	4	12	4	10	13	16	10	10	1	1
3	2	9	2	3	17	8	9	13	13	14	13	2	1

TABLE VII.—DEATHS, 1881.—Continued.

TOWNS AND DIVISIONS OF THE STATE.	POPULATION, 1880.		DEATHS, 1881.			Under 1 year.	1 and under 2.	2 and under 3.
	Whole Number.	SEX.	Per cent. to Population.	Whole Number.	SEX.			
Burrillville.....	5,714	Males....	1.38	79	34	4	2	1
		Females..			45	8	4	5
Cranston.....	5,940	Males....	2.86	170	89	6	3	1
		Females..			81	7	4	1
Cumberland.....	6,445	Males....	1.50	97	40	7	1	1
		Females..			57	9	3	1
East Providence...	5,056	Males....	1.72	87	47	13	6	4
		Females..			40	7	4	3
Foster.....	1,552	Males....	2.06	32	13	.....	.....	.....
		Females..			19	.....	.....	1
Glocester.....	2,250	Males....	2.18	49	25	2	.....	.....
		Females..			24	1	.....	2
Johnston.....	5,765	Males....	1.04	60	29	6	1	4
		Females..			31	7	2	...
Lincoln.....	13,765	Males....	2.31	318	147	45	18	15
		Females..			171	43	22	6
North Providence.	1,467	Males....	0.75	11	5	.....	.....	1
		Females..			6	.....	.....	.....
North Smithfield..	3,088	Males....	1.32	41	22	5	2	...
		Females..			19	5	1	...
Pawtucket.....	19,030	Males....	1.79	342	169	34	19	9
		Females..			173	32	7	6
Scituate.....	3,810	Males....	1.26	48	26	2	.....	.....
		Females..			22	1	.....	1
Smithfield.....	3,085	Males....	1.04	32	15	4	.....	.....
		Females..			17	2	2	1
Woonsocket.....	16,050	Males....	1.96	315	149	37	16	8
		Females..			166	36	13	6
TOWNS, PROV. CO.	93,017	Males....	1.82	1,681	810	165	68	44
		Females..			871	158	62	33
PROVIDENCE CITY.	104,857	Males....	2.05	2,145	1,047	232	78	34
		Females..			1,098	183	68	35
Charlestown.....	1,117	Males....	0.98	11	2	...	.....	.....
		Females..			9	.....	.....	.....
Exeter.....	1,310	Males....	1.76	23	13	1	1	1
		Females..			10	1	.....	1
Hopkinton.....	2,952	Males....	1.89	56	27	4	2	1
		Females..			29	5	1	...
North Kingstown.	3,949	Males....	1.47	58	28	4	2	1
		Females..			30	4	1	1
South Kingstown.	5,114	Males....	1.00	51	28	1	3	...
		Females..			23	4	.....	.....
Richmond.....	1,949	Males....	1.33	26	15	3	.....	.....
		Females..			11	2	.....	.....
Westerly.....	6,104	Males....	0.69	42	22	1	3	1
		Females..			20	2	.....	2
WASHINGTON CO..	22,495	Males....	1.19	267	135	14	11	4
		Females..			132	18	2	4

TABLE VII.—DEATHS, 1881.—Continued.

3 and under 4.	4 and under 5.	5 and under 10.	10 and under 15.	15 and under 20.	20 and under 30.	30 and under 40.	40 and under 50.	50 and under 60.	60 and under 70.	70 and under 80.	80 and under 90.	90 and over.	Not stated.
2	2	2	1	3	2	....	2	....	6	3	4	....	....
2	1	3	1	1	5	2	3	4	1	1	4	....	....
1	1	3	....	2	8	14	10	12	6	10	6	....	6
2	....	3	....	1	7	7	13	3	8	7	10	5	3
2	2	1	1	1	5	5	4	2	4	2	3	....	....
2	....	1	1	2	6	6	7	4	5	3	6	1	....
....	2	1	....	2	3	3	2	4	4	3	....	....	....
....	....	1	1	1	3	2	3	3	5	5	2	....	....
....	1	....	....	2	2	1	....	1	2	3	1	....	....
....	....	....	....	....	1	1	2	2	3	5	4	....	....
....	....	1	1	....	....	1	1	4	6	4	3	2	....
2	1	2	....	1	2	1	1	1	4	....	4	2	....
1	....	....	....	....	1	1	4	7	3	....	1	....	....
....	....	1	....	2	1	3	3	2	5	2	3	....	....
4	3	6	2	5	7	12	11	4	6	9	....	....	....
4	8	8	6	9	15	8	7	8	9	9	7	1	1
1	1	....	....	....	....	1	....	....	....	1	....	....	....
1	....	1	....	....	1	....	....	1	1	....	....	1	....
1	1	4	....	....	1	1	....	2	3	2	....	....	....
1	....	1	1	1	3	1	....	....	2	....	2	1	....
4	3	13	3	3	12	11	10	12	15	11	9	1	....
6	3	6	2	5	20	20	11	13	15	20	6	1	....
2	....	1	1	1	1	1	1	4	5	3	4	....	....
....	1	1	2	3	3	2	2	3	2	....	1	....	....
....	....	1	....	1	....	1	1	1	....	4	2	....	....
....	....	....	....	....	....	....	1	2	2	2	4	1	....
2	1	12	3	1	18	8	15	8	7	7	4	2	....
7	2	4	5	11	21	22	6	13	6	5	8	1	....
19	17	45	12	21	60	60	61	61	67	62	37	5	6
27	16	32	19	37	88	75	59	59	68	59	61	14	4
30	22	48	17	32	106	79	85	83	92	68	37	4	....
23	22	43	19	31	131	114	73	103	83	88	69	13	....
....	....	....	....	....	1	....	....	1	....	....	....	....	....
....	....	....	1	....	1	....	2	2	....	2	1	....	....
1	....	1	1	....	....	....	1	1	....	4	1	....	....
....	....	....	1	....	1	1	....	1	2	1	....	1	....
....	....	2	1	1	....	1	1	4	3	4	2	1	....
....	1	3	4	....	2	2	....	2	1	4	4	....	....
1	1	....	....	....	1	3	2	1	2	5	5	....	....
1	1	2	....	2	1	1	3	2	3	4	2	2	....
....	....	....	....	....	3	3	2	1	10	2	2	1	....
....	....	....	....	4	2	3	2	1	....	4	2	....	1
....	....	....	1	....	2	....	1	1	5	1	1	....	....
....	....	....	....	....	....	....	2	2	1	3	1	....	....
....	1	3	1	1	2	....	1	1	3	1	1	1	1
....	....	1	1	1	3	1	2	1	1	1	2	1	1
2	2	6	4	2	9	7	8	10	23	17	12	3	1
1	2	6	7	7	10	8	11	11	8	19	12	4	2

TABLE VII.—DEATHS, 1881.—RECAPITULATION BY COUNTIES.

COUNTIES.	POPULATION, 1880.		DEATHS, 1881.			Under 1 year.	1 and under 2.	2 and under 3
	Whole Number.	SEX.	Per cent. to Population.	Whole Number.	SEX.			
BRISTOL Co.....	11,394	Males....	1.79	204	116	26	7	2
		Females..			88	11	2	3
KENT Co.....	20,588	Males....	1.65	339	168	37	7	3
		Females..			171	27	4	4
NEWPORT Co.....	24,180	Males....	1.57	380	191	33	7	5
		Females..			189	24	3	...
PROVIDENCE Co..	197,874	Males....	1.93	3,826	1,857	397	146	78
		Females..			1,969	341	130	68
WASHINGTON Co..	22,495	Males....	1.19	267	135	14	11	4
		Females..			132	18	2	4
WHOLE STATE....	276,531	Males....	1.81	5,016	2,467	507	178	92
		Females..			2,549	421	141	79

TABLE VII.—DEATHS, 1881.—RECAPITULATION BY COUNTIES.

3 and under 4.	4 and under 5.	5 and under 10.	10 and under 15.	15 and under 20.	20 and under 30.	30 and under 40.	40 and under 50.	50 and under 60.	60 and under 70.	70 and under 80.	80 and under 90.	90 and over.	Not stated.
2 1	2 ....	4 5	4 4	2 3	5 9	5 10	8 5	10 7	10 8	20 10	8 10	1 ....	.... ....
5 8	1 6	17 7	3 11	3 11	10 14	6 10	9 12	17 8	12 14	18 14	14 12	5 8	1 1
5 4	7 2	4 12	2 2	6 4	14 20	7 14	14 16	19 15	27 21	19 24	16 21	3 3	3 4
49 50	39 38	93 75	29 38	53 68	166 219	139 189	146 132	144 162	159 151	130 147	74 130	9 27	6 4
2 1	2 2	6 6	4 7	2 7	9 10	7 8	8 11	10 11	23 8	17 19	12 12	3 4	1 2
63 64	51 48	124 105	42 62	66 93	204 272	164 231	185 176	200 203	231 202	204 214	124 185	21 42	11 11



## CAUSES OF DEATH.

CAUSES OF DEATH.																																			
M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		Am.		For.		M.		F.		Total.			
Cancer of Breast.....	3	2	1	1	1	1	1	1	1	2	1	1	1	1	4	1	1	2	1	1	1	1	1	11	5	...	16	...	16	...	16	16			
“ of Stomach.....	1	2	3	1	1	1	1	1	2	1	1	1	1	1	1	1	2	2	2	2	1	1	1	14	13	15	12	...	12	...	27	27			
“ of Uterus.....	1	1	1	2	2	1	1	3	1	3	2	2	2	5	1	1	1	1	1	1	3	1	1	14	8	...	22	...	22	...	22	22			
Carbuncle.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	...	2	...	2	2				
Cataract.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	...	2	...	2	2				
Cellulitis, Pelvic.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Child-birth.....	3	3	3	3	3	3	3	3	3	4	3	1	1	5	1	3	1	1	1	1	1	1	1	15	17	...	32	...	32	...	32	32			
“ Puerperal Convulsions.	2	2	2	2	2	2	2	2	2	1	1	1	1	2	1	1	1	1	1	1	1	1	1	4	2	...	6	...	6	...	6	6			
“ Puerperal Fever.....	6	4	4	2	3	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	7	15	...	22	...	22	...	22	...	22	22		
Cholera Infantum.....	1	2	1	1	3	1	2	2	1	4	2	4	2	2	9	13	2	3	1	1	1	1	102	138	130	110	...	240	...	240	...	240	240		
“ Morbus.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7	11	9	9	...	18	...	18	...	18	18		
Colic.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7	3	5	5	...	10	...	10	...	10	10		
Consumption.....	20	47	25	22	33	22	39	32	34	23	32	32	29	33	44	22	34	29	28	20	28	22	28	277	429	308	398	...	706	...	706	...	706	706	
Convulsions.....	6	4	6	3	3	1	5	1	5	4	7	4	4	6	5	6	4	3	2	5	2	4	5	43	56	60	39	...	99	...	99	...	99	99	
Croup.....	5	5	6	5	3	5	1	5	3	2	1	3	2	1	1	3	8	7	4	6	12	7	6	38	63	45	56	...	101	...	101	...	101	101	
Debility.....	1	2	1	3	6	4	5	7	2	2	3	3	2	15	9	4	4	3	3	4	3	2	3	39	53	49	43	...	92	...	92	...	92	92	
“ Birth Premature.....	2	2	1	2	1	1	1	3	2	1	2	1	2	1	1	1	1	1	1	1	1	1	14	16	18	12	...	30	...	30	...	30	30		
Diabetes.....	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	3	1	1	1	2	1	1	13	3	12	4	...	16	...	16	...	16	16		
Diarrhoea.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	25	36	29	32	...	61	...	61	...	61	61		
“ Chronic.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	13	11	5	...	16	...	16	...	16	16		
Diphtheria.....	5	10	4	13	5	8	12	7	7	6	2	3	4	7	14	9	8	13	16	12	19	17	10	5	118	98	106	110	...	216	...	216	...	216	216
Dropsy.....	2	2	1	1	1	1	1	2	2	2	2	2	2	3	2	4	2	4	3	2	3	1	3	27	20	23	24	...	47	...	47	...	47	47	
“ of Chest.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Dysentery.....	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	26	16	16	26	...	42	...	42	...	42	42		
Embolism.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1	4	...	5	...	5	...	5	5
Enteritis.....	1	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	27	17	18	26	...	44	...	44	...	44	44		

TABLE VIII.—DEATHS, 1881.—Continued.

CAUSES OF DEATH.	Jan.		Feb.		Mar.		April.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.		PARENTAGE.			SEX.							
																											Am.		For.		M.		F.		Total.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Am.	For.	M.	F.	M.	F.	M.	F.			
Epilepsy.....	2	..	2	1	..	..	1	..	1	..	1	..	2	..	2	..	..	..	..	..	..	..	..	1	7	6	11	2	13						
Erysipelas.....	..	3	1	3	3	2	1	1	1	2	2	1	1	..	1	..	..	..	3	..	1	2	..	..	19	12	15	16	31						
Exposure to cold.....	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	2	1	3						
Fever.....	..	2	1	..	..	..	2	1	..	..	..	..	1	..	..	..	1	1	1	1	1	1	1	5	8	8	5	13							
“ Bilious.....	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	1	1	1	2	3				
“ Gastric.....	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	1	2	1	1	1	1	1	1	1	1			
“ Intermittent.....	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
“ Remittent Malarial.....	..	..	..	..	1	..	1	..	1	..	..	1	..	..	..	..	1	2	..	1	..	..	2	7	7	2	4	5	9						
“ Typhoid.....	2	3	4	3	2	3	7	4	2	2	2	2	3	2	7	3	3	9	9	10	7	12	11	3	59	56	59	56	115						
Fits.....	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	1	..	..	..	..	3	..	2	1	3							
Gallstones.....	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	7	2	9							
Gangrene.....	..	1	..	..	1	1	2	..	1	..	1	..	1	..	..	..	..	..	..	..	..	2	..	1	..	6	3	7	2	5					
“ Senile.....	1	..	1	..	1	1	..	..	..	1	..	1	..	1	..	1	..	..	..	..	..	..	..	4	1	3	2	5							
Glottis, (Edema of.....	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	1					
Heart, Diseases of.....	7	7	12	9	8	10	8	10	12	17	15	8	16	7	9	19	7	6	11	10	7	11	13	12	147	104	125	126	251						
“ Hypertrophy of.....	..	2	1	1	..	1	1	1	..	..	..	..	..	1	1	1	1	1	..	..	..	..	2	7	6	6	7	13							
Heat.....	..	..	..	..	..	..	..	..	1	..	1	..	1	1	1	1	..	..	..	..	..	..	1	..	..	4	2	2	2	4					
Hemorrhage.....	1	1	4	2	1	2	..	1	1	1	1	1	1	..	1	..	2	3	..	1	..	1	12	9	8	13	21								
“ from Lungs.....	2	..	..	..	..	..	..	..	..	1	1	2	..	..	..	..	..	..	..	..	..	..	1	5	1	5	6	2							
“ from Stomach.....	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	1	1	2	..	2							
Hernia.....	1	1	..	1	1	..	1	..	1	1	1	..	..	..	..	2	..	..	..	..	1	1	2	8	6	4	10								
Hip-Joint, Disease of.....	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1						
Hooping Cough.....	1	1	1	2	4	1	1	1	3	1	2	3	5	5	10	6	3	1	4	3	2	3	3	30	38	33	35	68							



TABLE VIII.—CAUSES OF DEATH, 1880.—Continued.

CAUSES OF DEATH.	Jan.		Feb.		Mar.		April.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.		PARENTAGE.			SEX.						
	M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		Am.		For.		M.		F.		Total.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Am.	For.	M.	F.	Total.					
Peritonitis.....	1	1	1	1	1	3	1	2	3	1	1	1	1	1	2	1	2	1	1	1	1	1	1	3	10	17	9	18	27					
Pleurisy.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	4	8					
Pneumonia.....	28	19	23	17	14	8	32	25	15	10	8	11	7	1	4	12	2	1	9	9	8	11	12	15	172	129	162	139	301					
“ Congestion of Lungs.	5	1	2	1	4	2	2	2	1	1	1	1	1	1	2	1	1	1	1	1	4	1	1	1	18	8	15	11	26					
Prostate, Disease of.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
Purpura Hemorrhagica.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
Pustule Malignant.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
Pyæmia.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
Quinsy.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
Rheumatism.....	2	1	3	1	1	2	3	2	1	1	1	1	1	1	1	1	1	3	1	1	3	1	1	1	13	16	16	13	29					
Scarlatina.....	15	10	16	15	8	4	5	4	8	6	5	6	4	5	2	3	2	3	2	3	2	7	3	3	62	76	79	59	138					
Scrofula.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	2	1	1	1	1	8	6	6	8	14					
Septicæmia.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
Skin, Disease of.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	3				
Small Pox.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3			
Spine, Disease of.....	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	1	1	1	1	1	6			
Stomach, Disease of.....	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	4	5	5	10					
“ Inflammation of.....	1	4	1	1	1	4	2	1	2	1	2	1	1	1	1	1	3	1	3	1	1	1	1	1	6	21	9	18	27					
Stricture of Urethra.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	1	1	2	2			
Suicide.....	1	1	1	1	2	2	1	2	1	2	5	1	1	1	1	1	1	1	1	1	1	1	1	15	8	19	4	23						
Surgical Operations.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	3	4				
Syphilis.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2	1	1	1	2	2	2			
“ Congenital.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	2	2	2			









## CAUSES OF DEATH.

CAUSES OF DEATH.	Under 1.		1 and under 2.		2 to 5.		5 to 10.		10 to 15.		15 to 20.		20 to 30.		30 to 40.		40 to 50.		50 to 60.		60 to 70.		70 to 80.		80 and over.		Age not stated.		SEX.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
	Total.																													
Hip-Joint, Disease of	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Hooping Cough.	19	14	8	12	5	6	1	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	68
Hydrocephalus.	11	11	7	6	5	10	2	3	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	56
Influenza	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
Insanity	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	32
Intemperance.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
“ Delirium Tremens.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
Intussusception.	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
Jaundice.	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Kidneys, Disease of.	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25
“ Bright's Disease of.	1	...	...	...	1	...	...	...	1	1	1	...	7	2	1	4	5	4	8	7	5	3	2	1	...	...	...	...	...	54
Laryngitis.	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
Lightning Stroke	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Liver, Disease of.	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	35
“ Inflammation of	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
Locomotor Ataxia.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
Lungs, Disease of.	2	2	...	...	1	1	...	...	...	...	2	...	1	2	2	1	2	...	...	...	...	...	...	...	...	...	...	...	...	20
Malformations, (all kinds)	13	13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	26
Malnutrition	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Marasmus.	26	15	...	...	2	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Measles.	2	8	5	5	7	2	1	2	1	1	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	52
Meningitis Cerebro-Spinal	...	2	...	...	1	2	1	1	2	1	...	...	2	2	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	37
“ Spinal.	...	...	...	...	1	1	...	...	1	1	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18
Murder and Homicide.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
Neuralgia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2





TABLE X.—CLASSIFICATION AND PERCENTAGE, 1881.

*Showing what part of the Mortality in the whole State, and in each Division is ascribed to each cause and class of causes.*

NUMBER OF DEATHS IN EACH DIVISION OF THE STATE.							PERCENTAGE OF DEATHS IN EACH DIVISION.							
CAUSES OF DEATH.							Percentage in the Whole State.	Washington County.	Providence City.	Providence County, Towns.	Newport City.	Newport County, Towns.	Kent County.	Bristol County.
Bristol County.	Kent County.	Newport County, Towns.	Newport City.	Providence County, Towns.	Providence City.	Washington County.								
203	313	117	229	1,451	2,130	226	All Causes. ....	.....	.....	.....	.....	.....	.....	.....
43	98	22	47	372	529	60	Specified Causes. ....	100.00	100.00	100.00	100.00	100.00	100.00	100.00
							I. ZYMOTIC DISEASES. ....	25.08	26.55	24.85	25.63	20.53	18.81	31.31
							SPORADIC DISEASES.							
37	25	6	35	170	218	33	II. GENERAL OR NOT LOCALIZED	11.22	14.60	10.23	11.71	15.28	5.13	7.99
35	40	22	31	211	290	24	III. NERVOUS SYSTEM. ....	13.98	10.62	13.62	14.54	13.53	18.81	12.78
38	65	28	48	356	592	54	IV. RESPIRATORY SYSTEM. ....	25.30	23.89	27.79	24.54	20.96	23.93	20.76
9	21	8	17	78	122	16	V. CIRCULATORY SYSTEM. ....	5.80	7.08	5.73	5.38	7.43	6.84	6.71
13	7	3	15	55	118	13	VI. DIGESTIVE SYSTEM. ....	4.80	5.75	5.53	3.79	6.55	2.56	2.24
7	8	2	4	21	63	7	VII. URINARY SYSTEM. ....	2.40	3.10	2.96	1.45	1.75	1.71	2.56
...	1	1	3	18	16	2	VIII. GENERATIVE SYSTEM. ....	.88	.89	.75	1.24	1.31	.85	.32
3	2	...	2	10	25	1	IX. LOCOMOTIVE SYSTEM. ....	.92	.44	1.17	.69	.87	.....	.64
...	...	...	...	3	3	...	X. INTEGUMENTIVE SYSTEM. ..	.13	.....	.14	.21	.....	.....	.....
12	24	18	18	93	72	10	XI. OLD AGE. ....	5.29	4.43	3.38	6.41	7.86	15.38	7.66
6	22	7	9	64	82	6	XII. EXTERNAL CAUSES. ....	4.20	2.65	3.85	4.41	3.93	5.98	7.03



TABLE X.—CLASSIFICATION AND PERCENTAGE, 1881.—Continued.

NUMBER OF DEATHS IN EACH DIVISION OF THE STATE.							PERCENTAGE OF DEATHS IN EACH DIVISION.							
CAUSES OF DEATH.							Percentage in the Whole State.	Washington County.	Providence City.	Providence Towns.	Newport City.	Newport County, Towns.	Kent County.	Bristol County.
Bristol County.	Kent County.	Newport County, Towns.	Newport City.	Providence County, Towns.	Providence City.	Washington County.								
1	1	...	...	2	1	...	4	Anæmia.....	.09	.....	.05	.....	.....	.49
8	10	2	10	42	65	8	145	Cancer.....	3.11	3.54	3.05	4.37	.....	3.94
8	8	.....	.....	.....	1	.....	1	Cellulitis Pelvic.....	.02	.....	.05	.....	.....	.....
4	3	1	2	58	35	9	122	Debility.....	2.61	3.98	1.65	4.37	.....	3.94
1	1	4	4	21	5	11	47	Dropsy.....	1.01	4.87	.23	1.45	.85	1.97
1	1	1	1	2	6	.....	14	Gangrene.....	.30	.....	.28	1.14	.....	.49
2	3	1	1	6	9	1	23	Hemorrhage.....	.49	.44	.42	.41	.85	.99
.....	1	1	3	6	15	.....	26	Malformation.....	.56	.....	.70	.41	.85	.....
7	.....	.....	3	8	34	.....	52	Marasmus.....	1.11	.....	1.60	.55	.....	3.45
.....	.....	.....	.....	.....	3	.....	3	Purpura Hemorrhagica.....	.06	.....	.14	.....	.....	.....
1	1	.....	.....	7	5	1	14	Scrofula.....	.30	.44	.23	.48	.....	.49
1	1	.....	.....	.....	.....	.....	1	Thrush.....	.02	.....	.....	.....	.....	.....
2	3	.....	.....	7	25	2	39	Tuberculosis.....	.83	.89	1.17	.48	.....	.99
2	1	1	1	3	6	1	15	Tumors.....	.32	.44	.28	.21	.85	.99
.....	.....	.....	.....	.....	1	.....	1	Ophthalmia.....	.02	.....	.05	.....	.....	.....
37	25	6	35	170	218	33	524	Total.....	11.22	14.60	10.23	11.71	15.28	18.23

## III. NERVOUS SYSTEM.

	7	35	40	22	31	211	290	24	653	Total.....	13.98	10.62	13.62	14.54	13.53	18.81	12.78	17.24
146 Apoplexy.....	74	8	34	7	10	34	74	8	146	Apoplexy.....	3.13	3.54	3.47	2.34	4.37	5.98	1.92	3.45
19 Brain, Congestion of.....	4	4	4	2...	1	4	8	4	19	Brain, Congestion of.....	.41	1.77	.38	.28	.44	.....	.64	.....
53 Brain, Diseases of.....	27	...	20	3	1...	20	27	...	53	Brain, Diseases of.....	1.14	.....	1.27	1.38	.....	.85	.96	.99
107 Brain, Inflammation of.....	33	1	33	6	3	33	33	1	107	Brain, Inflammation of.....	2.29	.44	2.49	2.27	3.06	2.56	1.92	1.97
102 Convulsions and Fits.....	37	...	44	11	4	44	37	...	102	Convulsions and Fits.....	2.18	.....	1.74	3.03	1.75	.85	3.51	2.46
10 Delirium Tremens.....	5	1	4	...	...	4	5	1	10	Delirium Tremens.....	.21	.44	.23	.28	.....	.....	.....	.....
13 Epilepsy.....	5	...	6	...	2	6	5	...	13	Epilepsy.....	.28	.....	.23	.41	.87	.....	.....	.....
56 Hydrocephalus.....	32	...	16	2	...	16	32	...	56	Hydrocephalus.....	1.20	.....	1.50	1.10	.44	...	.64	2.46
32 Insanity.....	16	1	10	1	2	10	16	1	32	Insanity.....	.68	.44	.75	.69	.44	1.71	.32	.49
7 Meningitis, Spinal.....	3	...	1	...	1	1	3	...	7	Meningitis, Spinal.....	.15	.....	.14	.07	.44	.85	.....	.49
2 Neuralgia.....	1	...	1	...	...	1	1	...	2	Neuralgia.....	.04	.44	.....	.07	.....	.....	.....	.....
98 Paralysis.....	27	8	36	9	6	36	27	8	98	Paralysis.....	2.10	3.54	1.27	2.48	.87	5.13	2.88	4.93
8 Tetanus and Tris. Nascendum.....	3	...	2	...	2	2	3	...	8	Tetanus and Tris. Nascendum.....	.17	.....	.14	.14	.87	.85	.....	.....
Total.....	35	40	22	31	211	290	24	653	Total.....	Total.....	13.98	10.62	13.62	14.54	13.53	18.81	12.78	17.24

## IV. RESPIRATORY SYSTEM.

	16	84	706	2	1	1	6	5	20	8	301	26	16	7	14	1	1	1
16 Asthma.....	3	...	...	...	...	...	...	...	16	Asthma.....	.34	.....	.14	.69	.44	.....	.64	.....
84 Bronchitis.....	53	2	25	1	...	2	53	2	84	Bronchitis.....	1.80	.89	2.49	1.72	.87	.....	.32	.49
706 Consumption.....	34	30	220	36	20	31	34	30	706	Consumption.....	15.12	13.28	16.15	15.16	13.53	17.09	11.50	12.32
2 Catarrh.....	...	...	...	...	2	...	...	...	2	Catarrh.....	.04	.....	.....	.....	.87	.....	.....	.....
1 Dropsy of Chest.....	1	...	...	...	...	...	1	...	1	Dropsy of Chest.....	.02	.....	.05	.....	.....	.....	.....	.....
1 Glottis, Oedema of.....	1	...	1	...	...	1	...	...	1	Glottis, Oedema of.....	.02	.....	.....	.07	.....	.....	.....	.....
6 Hemorrhage from Lungs.....	3	...	1	...	...	1	3	...	6	Hemorrhage from Lungs.....	.13	.....	.14	.07	.....	.32	.49	.....
5 Laryngitis.....	1	...	2	...	...	2	1	...	5	Laryngitis.....	.11	.....	.05	.14	.87	.....	.....	.....
20 Lungs, Diseases of.....	4	...	14	...	1	14	4	...	20	Lungs, Diseases of.....	.43	.....	.19	.96	.44	.....	.49	.....
8 Pleurisy.....	6	...	2	...	...	2	6	...	8	Pleurisy.....	.17	.....	.28	.14	.....	.....	.....	.....
301 Pneumonia.....	21	160	74	8	8	74	21	160	301	Pneumonia.....	6.45	9.29	7.51	5.10	3.49	6.84	7.03	3.94
26 " Congestion of Lungs.....	1	7	7	1	...	7	14	1	26	" Congestion of Lungs.....	.56	.44	.66	.48	.44	.....	.32	.99

TABLE X.—CLASSIFICATION AND PERCENTAGE, 1881.—Continued.

NUMBER OF DEATHS IN EACH DIVISION OF THE STATE.							PERCENTAGE OF DEATHS IN EACH DIVISION.							
CAUSES OF DEATH.							Percentage in the Whole State.	Washington County.	Providence City.	Providence County, Towns.	Newport City.	Newport County, Towns.	Kent County.	Bristol County.
Bristol County.	Kent County.	Newport County, Towns.	Newport City.	Providence County, Towns.	Providence City.	Washington County.								
1	1	1	2	3	2	3	.06	.09	.09	.32	.32	.32	.32	
1	1	1	1	2	1	2	.04	.05	.05	.32	.32	.32	.32	
38	65	28	48	356	592	54	25.30	27.79	24.54	20.96	23.93	20.76	18.72	
Total.....														
V. CIRCULATORY SYSTEM.														
1	1	1	1	1	1	2	.04	.05	.07	.85	.85	.85	.85	
1	1	1	4	4	4	5	.11	.28	.28	.85	.85	.85	.85	
9	21	7	17	73	121	16	5.65	5.68	5.03	7.43	5.98	6.71	4.43	
Heart, Diseases of.....														
9	21	8	17	78	122	16	5.80	5.73	5.38	7.43	6.83	6.71	4.43	
Total.....														
VI. DIGESTIVE SYSTEM.														
1	1	1	3	3	3	6	.13	.14	.21	.21	.85	.32	.32	
1	1	1	3	3	5	10	.21	.23	.21	.21	.85	.32	.32	
4	1	1	6	9	19	5	.94	.89	.62	2.62	.32	.32	1.97	
1	1	1	1	1	1	1	.02	.44	.02	.44	.02	.44	.02	
4	4	4	3	3	3	10	.21	.14	.21	.21	.21	.21	.21	
1	1	1	1	1	3	5	.11	.14	.07	.44	.44	.44	.44	
Intussusception.....														





2	3	...	...	5	8	1	19	"	Falls	.41	.44	.38	.34	...	...	.96	.99
...	...	...	...	4	5	...	9	"	Poisoning	.19	...	.23	.28	...	...	...	...
...	4	...	...	6	9	1	20	"	Railroad	.43	.44	.42	.41	...	...	1.28	...
...	...	...	1	2	...	...	3	Exposure to cold	...	.06	...	...	.14	...	.44	...	...
...	1	...	...	2	1	...	4	Heat	...	.09	...	.05	.14	...	...	.32	...
1	...	...	1	3	9	...	14	Intemperance	...	.30	...	.42	.21	...	.44	...	.49
...	2	...	...	...	...	...	2	Lightning Stroke	...	.04	...	...	...	...	...	.64	...
...	...	...	...	1	3	...	4	Murder	...	.09	...	.14	.07	...	...	...	...
...	5	1	2	...	14	1	23	Suicide	...	.49	.44	.66	...	.87	...	1.60	...
...	...	...	...	1	3	...	4	Surgical Operation	...	.09	...	.14	.07	...	...	...	...
6	22	7	9	64	82	6	196	Total	...	4.20	3.65	3.85	4.14	3.94	5.97	7.04	2.96

TABLE XI.—OCCUPATIONS AND AGES AT DEATH, 1881.

*Showing the Average Age at Death in the several Occupations, Providence City being separated from the rest of the State, and ages under twenty being excluded.*

OCCUPATIONS.	PROVIDENCE CITY.			REST OF STATE.			WHOLE STATE.		
	Number who Died.	Aggregate Age.	Average Age.	Number who Died.	Aggregate Age.	Average Age.	Number who Died.	Aggregate Age.	Average Age.
<b>I. AGRICULTURE.</b>									
Farmers.....	8	559	69.87	163	10,894	66.83	171	11,453	66.97
Florists.....	2	72	36.00	1	24	24.00	3	96	32.00
Gardeners.....	5	349	69.80	5	260	52.00	10	609	60.90
<b>II. PROFESSIONAL AND PERSONAL SERVICES.</b>									
Actor.....	1	44	44.00	...	...	...	1	44	44.00
Architect.....	1	79	79.00	...	...	...	1	79	79.00
Artist.....	...	...	...	1	64	64.00	1	64	64.00
Barbers.....	6	190	31.66	2	106	53.00	8	296	37.00
Civil Engineer....	1	34	34.00	...	...	...	1	34	34.00
Clergymen.....	4	251	62.75	2	158	79.00	6	409	68.17
Clerks and Salesmen.	15	494	32.93	8	294	36.75	23	788	34.26
Coachmen.....	5	247	49.40	2	100	50.00	7	347	49.57
Contractors.....	3	215	71.66	...	...	...	3	215	71.66
Cooks.....	...	...	...	1	28	28.00	1	28	28.00
Hostler.....	1	29	29.00	...	...	...	1	29	29.00
Hotel-keeper.....	1	45	45.00	5	241	48.20	6	286	47.67
Inspector.....	1	39	39.00	...	...	...	1	39	39.00
Inventor.....	1	47	47.00	1	80	80.00	2	127	63.50
Janitor.....	1	29	29.00	...	...	...	1	29	29.00
Journalist.....	...	...	...	1	53	53.00	1	53	53.00
Laborers.....	119	5,901	49.59	113	6,012	53.20	232	11,913	51.35
Lawyers.....	2	122	61.50	...	...	...	2	122	61.50
Naval Officer.....	1	41	41.00	3	120	40.00	4	161	40.25
Nurse.....	...	...	...	1	60	60.00	1	60	60.00
Photographers..	2	118	59.00	...	...	...	2	118	59.00
Physicians.....	2	139	69.50	6	392	65.33	8	531	66.37
Policemen.....	2	126	63.00	...	...	...	2	126	63.00
P. O. Employé....	1	45	45.00	...	...	...	1	45	45.00
Saloon-keepers....	2	76	38.00	5	203	40.60	7	279	39.86
Stable-keeper.....	1	48	48.00	2	78	39.00	3	126	42.00

TABLE XI.—OCCUPATIONS, 1881.—Continued.

OCCUPATIONS.	PROVIDENCE CITY.			REST OF STATE.			WHOLE STATE.		
	Number who Died.	Aggregate Age.	Average Age.	Number who Died.	Aggregate Age.	Average Age.	Number who Died.	Aggregate Age.	Average Age.
Student.....	...	...	...	1	23	23.00	1	23	23.00
Teacher.....	1	49	49.00	1	56	56.00	2	105	52.50
Waiter.....	1	25	25.00	1	60	60.00	2	85	42.50
Watchmen.....	...	...	...	2	129	64.50	2	129	64.50
III. TRADE AND TRANSPORTATION.									
Agents.....	9	569	63.22	1	73	73.00	10	642	64.20
“ Insurance...	4	293	73.25	...	...	...	4	293	73.25
Baggage-master....	1	29	29.00	1	29	29.00	2	58	29.00
Banker.....	1	76	76.00	...	...	...	1	76	76.00
Bar-tenders.....	2	68	34.00	1	30	30.00	3	98	32.66
Book-keepers.....	13	613	47.15	5	198	39.60	18	811	45.05
Book-seller.....	1	78	78.00	...	...	...	1	78	78.00
Brakemen.....	3	90	30.00	1	29	29.00	4	119	29.75
Brokers.....	3	186	62.00	3	177	59.00	6	363	60.50
Butchers.....	3	197	65.66	3	162	54.00	6	359	59.83
Car and Stage Drivers.....	...	...	...	1	49	49.00	1	49	49.00
Cashier (Bank, &c.)	...	...	...	1	83	83.00	1	83	83.00
Commercial Travelers.....	2	78	39.00	...	...	...	2	78	39.00
Conductors.....	2	100	50.00	...	...	...	2	100	50.00
Dealers in Clothing.	1	43	43.00	...	...	...	1	43	43.00
“ Coal.....	1	25	25.00	...	...	...	1	25	25.00
“ Junk.....	1	33	33.00	...	...	...	1	33	33.00
“ Lumber....	1	68	68.00	...	...	...	1	68	68.00
“ Provisions..	2	114	57.00	...	...	...	2	114	57.00
“ Shoes.....	2	113	56.50	...	...	...	2	113	56.50
“ Wool Waste	1	55	55.00	...	...	...	1	55	55.00
Expressman.....	...	...	...	1	57	57.00	1	57	57.00
Fishermen and Oystermen.....	2	124	62.00	4	241	60.25	6	365	60.83
Grocers.....	6	384	64.00	6	388	64.67	12	772	64.33
Hackman.....	1	40	40.00	...	...	...	40	1	40.00
Liquor Dealer.....	1	71	71.00	2	111	55.50	3	182	60.67
Mariners.....	4	157	39.25	11	603	54.82	15	760	50.67
Marketman.....	1	70	70.00	1	77	77.00	2	147	73.50
Merchants.....	11	627	57.00	19	1,160	61.05	30	1,787	59.57
Milkman.....	...	...	...	1	50	50.00	1	50	50.00
Peddlers.....	2	88	44.00	3	208	69.33	5	296	59.20

TABLE XI.—OCCUPATIONS, 1881.—Continued.

OCCUPATIONS.	PROVIDENCE CITY.			REST OF STATE.			WHOLE STATE.		
	Number who Died.	Aggregate Age.	Average Age.	Number who Died.	Aggregate Age.	Average Age.	Number who Died.	Aggregate Age.	Average Age.
Porters.....	3	173	57.66	...	...	...	3	173	57.66
Teamsters.....	11	558	50.73	2	120	60.00	13	678	52.15
Traders and Dealers.	5	288	57.60	9	460	51.11	14	748	53.43
IV. MANUFACTURES, MECHANICAL AND MINING INDUSTRIES.									
Bakers.....	...	...	...	4	230	57.50	4	230	57.50
Blacksmiths.....	15	793	52.86	6	353	58.83	21	1,146	54.57
Bleacher.....	...	...	...	1	34	34.00	1	34	34.00
Boiler-maker.....	...	...	...	1	58	58.00	1	58	58.00
Boot and Shoe-makers.....	9	481	53.44	10	686	68.60	19	1,167	61.42
Box-maker.....	1	29	29.00	...	...	...	1	29	29.00
Cabinet-makers....	4	231	57.75	2	111	55.50	6	342	57.00
Calico-printer.....	1	64	64.00	...	...	...	1	64	64.00
Carpenters.....	11	657	59.72	31	1,785	57.60	42	2,442	58.14
Carriage-makers....	...	...	...	2	107	53.50	2	107	53.50
Carriage-trimmer...	1	59	59.00	...	...	...	1	59	59.00
Chain-maker.....	1	43	43.00	...	...	...	1	43	43.00
Cigar-maker.....	1	28	28.00	1	73	73.00	2	101	50.50
Comb-maker.....	1	67	67.00	...	...	...	1	67	67.00
Confectioner.....	...	...	...	1	78	78.00	1	78	78.00
Cooper.....	...	...	...	1	42	42.00	1	42	42.00
Currier and Tanner.	1	71	71.00	1	51	51.00	2	122	61.00
Die Sinkers.....	2	91	45.50	1	49	49.00	3	140	46.67
Dyer.....	1	60	60.00	2	131	65.50	3	191	63.67
Engineers.....	...	...	...	4	161	40.25	4	161	40.25
Enameller.....	...	...	...	1	30	30.00	1	30	30.00
Engraver.....	...	...	...	1	63	63.00	1	63	63.00
File-makers.....	3	77	25.66	1	39	39.00	4	116	29.00
Fireman.....	1	36	36.00	...	...	...	1	36	36.00
Gas Fitter.....	1	33	33.00	1	63	63.00	2	96	48.00
Harness-makers....	...	...	...	2	82	41.00	2	82	41.00
House Mover.....	...	...	...	1	68	68.00	1	68	68.00
Ice-man.....	1	76	76.00	...	...	...	1	76	76.00
Iron Roller.....	1	55	55.00	...	...	...	1	55	55.00
Jewellers.....	31	1,272	41.03	3	121	40.33	34	1,393	40.97
Machinists.....	36	1,717	47.69	16	756	47.25	52	2,473	47.56
Manufacturers.....	2	141	70.50	8	521	65.12	10	662	66.20

TABLE XI.—OCCUPATIONS, 1881.—Continued.

OCCUPATIONS.	PROVIDENCE CITY.			REST OF STATE.			WHOLE STATE.		
	Number who Died.	Aggregate Age.	Average Age.	Number who Died.	Aggregate Age.	Average Age.	Number who Died.	Aggregate Age.	Average Age.
Masons.....	8	430	53.75	17	1,030	60.58	25	1,460	58.40
Mechanics.....	8	499	62.38	10	585	58.50	18	1,084	60.22
Miller.....	.....	.....	.....	1	69	69.00	1	69	69.00
Moulders.....	9	469	52.11	5	254	50.80	14	723	51.64
Nailer.....	1	54	54.00	1	50	50.00	2	104	52.00
Operatives.....	19	782	41.16	42	1,863	44.35	61	2,645	43.36
Overseers and Superintendents.....	2	80	40.00	6	280	46.67	8	360	45.00
Painters.....	11	470	42.72	8	434	54.25	19	904	47.58
Pattern-makers.....	2	125	62.50	.....	.....	.....	2	125	62.50
Paper Hangers.....	.....	.....	.....	1	71	71.00	1	71	71.00
Picker-maker.....	1	66	66.00	.....	.....	.....	1	66	66.00
Plater.....	1	25	25.00	.....	.....	.....	1	25	25.00
Plumbers.....	3	127	42.33	1	70	70.00	4	197	49.25
Printers.....	5	279	55.80	2	80	40.00	7	359	51.28
Rigger.....	.....	.....	.....	1	74	74.00	1	74	74.00
Rope-makers.....	.....	.....	.....	2	143	71.50	2	143	71.50
Rubber-workers.....	.....	.....	.....	8	327	40.88	8	327	40.88
Sail-makers.....	1	67	67.00	1	48	48.00	2	115	57.50
Ship Carpenters.....	.....	.....	.....	6	447	74.50	6	447	74.50
Silversmiths.....	1	37	37.00	1	89	89.00	2	126	63.00
Soap-maker.....	1	62	62.00	.....	.....	.....	1	62	62.00
Stair Builder.....	1	74	74.00	.....	.....	.....	1	74	74.00
Stone and Marble Cutters.....	2	88	44.00	2	45	22.50	4	133	33.25
Tailors.....	5	300	60.00	3	189	63.00	8	489	61.12
Tinsmiths.....	2	125	62.50	.....	.....	.....	2	125	62.50
Upholsterers.....	1	54	54.00	.....	.....	.....	1	54	54.00
Wheelwrights.....	1	42	42.00	1	62	62.00	2	104	52.00
Wire-drawer.....	.....	.....	.....	1	37	37.00	1	37	37.00
Wool-sorter.....	.....	.....	.....	1	78	78.00	1	78	78.00
V. FEMALES.									
Boarding House Keeper.....	.....	.....	.....	1	56	56.00	1	56	56.00
Box-maker.....	1	22	22.00	.....	.....	.....	1	22	22.00
Dressmakers and Seamstresses.....	7	325	46.43	3	137	45.68	10	462	46.20
Jewellers and Chain-makers.....	2	54	27.00	.....	.....	.....	2	54	27.00
Milliner.....	.....	.....	.....	1	31	31.00	1	31	31.00

TABLE XI.—OCCUPATIONS, 1881.—Continued.

OCCUPATIONS.	PROVIDENCE CITY.			REST OF STATE.			WHOLE STATE.		
	Number who Died.	Aggregate Age.	Average Age.	Number who Died.	Aggregate Age.	Average Age.	Number who Died.	Aggregate Age.	Average Age.
Nurse .....	1	43	43.00	...	...	...	1	43	43.00
Operatives. ....	11	327	29.72	17	427	25.11	28	754	26.93
Servants .....	21	877	41.76	...	...	...	21	877	41.76
Sisters of Mercy...	1	30	30.00	...	...	...	1	30	30.00
Tailoresses .....	2	82	41.00	...	...	...	2	82	41.00
Teachers.....	4	156	31.20	2	52	26.00	6	208	34.67

TABLE XI.—RECAPITULATION BY CLASSES.

OCCUPATIONS.	PROVIDENCE CITY.			REST OF STATE.			WHOLE STATE.		
	Number who Died.	Aggregate Age.	Average Age.	Number who Died.	Aggregate Age.	Average Age.	Number who Died.	Aggregate Age.	Average Age.
I. AGRICULTURE.	15	980	65.33	169	11,178	66.14	184	12,158	66.07
II. PROFESSIONAL AND PERSONAL SERVICES.....	175	8,433	48.19	158	8,257	52.26	333	16,690	50.12
III. TRADE AND TRANSPORTATION .....	100	5,408	54.08	76	4,305	56.64	176	9,713	55.19
IV. MANUFACTURES, MECHANICAL AND MINING INDUSTRIES.....	210	10,336	49.22	223	12,017	53.88	433	22,353	51.62
V. FEMALES....	50	1,916	38.32	24	703	29.29	74	2,619	35.40
ALL CLASSES....	550	27,073	49.22	650	36,460	56.09	1,200	63,533	52.94





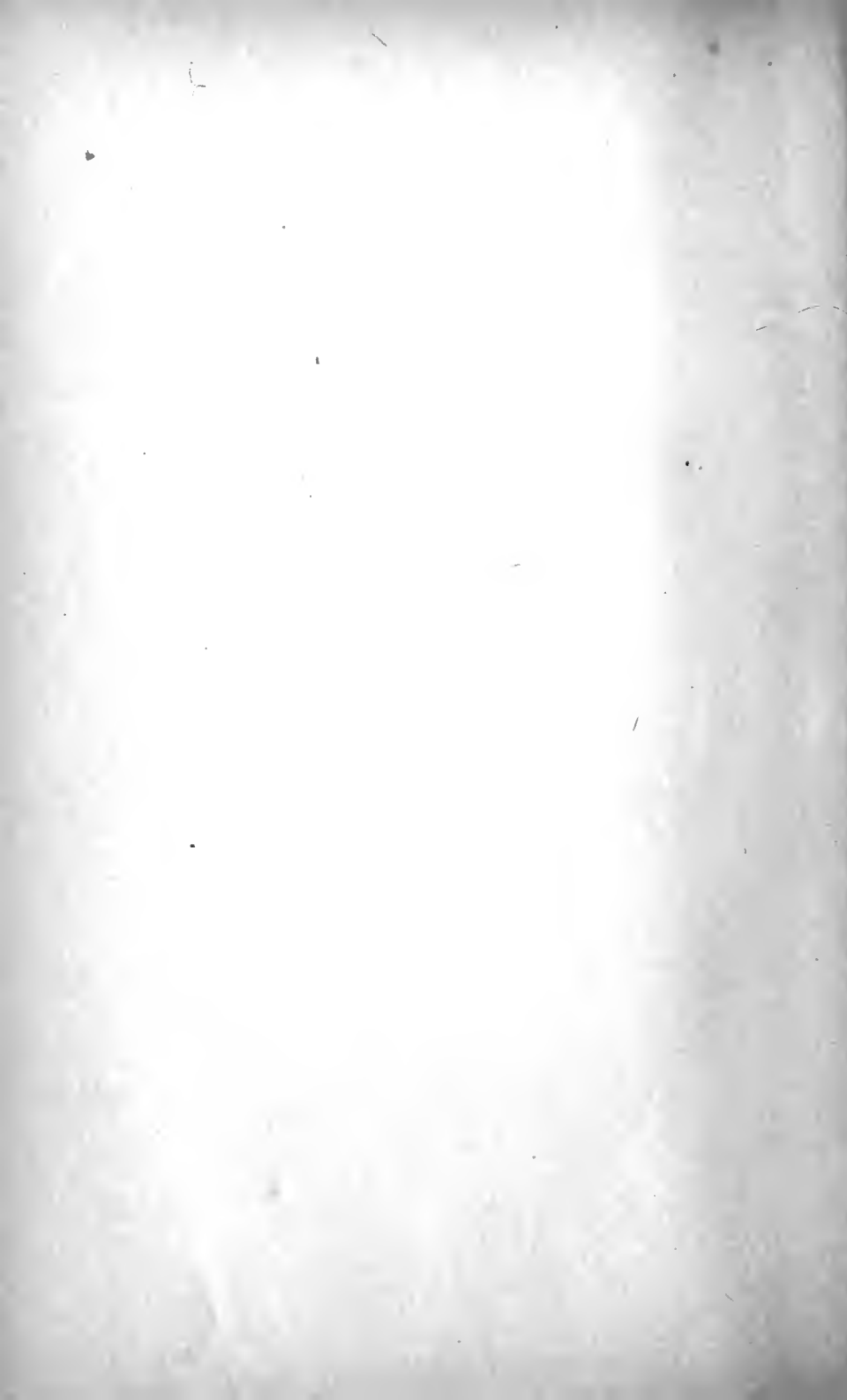
Occupations.	Whole Number of given causes.
Dealers in Liquor.....	1
" " Lumber.....	1
" " Provisions.....	1
" " Shoes.....	2
" " Wool Waste.....	2
Expressman.....	1
Fishermen and Oystermen.....	1
Grocers.....	6
Hackman.....	2
Markman.....	1
Merchants.....	1
Peddlers.....	5
Porters.....	6
Seamen.....	3
Teamsters.....	11
Traders not specified.....	12
V. MANUFACTURES, &c.	
Bakers.....	4
Blacksmiths.....	20
Boot and Shoe Makers.....	19
Bleacher.....	1
Box Maker.....	1
Cabinet Makers.....	6
Calico Printer.....	1
Carpenters.....	88
Carriage Makers.....	4
Carriage Trimmer.....	2
Chain Maker.....	1
Cigar Maker.....	2
Confectioner.....	1
Comb Maker.....	1
VI. MANUFACTURES, &c.	
Bakers.....	4
Blacksmiths.....	20
Boot and Shoe Makers.....	19
Bleacher.....	1
Box Maker.....	1
Cabinet Makers.....	6
Calico Printer.....	1
Carpenters.....	88
Carriage Makers.....	4
Carriage Trimmer.....	2
Chain Maker.....	1
Cigar Maker.....	2
Confectioner.....	1
Comb Maker.....	1











## RESULTS AND OBSERVATIONS, 1881.

There were recorded in the State of Rhode Island during the year 1881, six thousand seven hundred and sixty-one (6,761) births; two thousand seven hundred and fifty (2,750) marriages; and five thousand and sixteen (5,016) deaths.

TABLE XIII.

*Presenting the general results of Registration in the State, during each of the last twenty-eight years.*

Year.	Whole Number of Births.	Still-born.	Living Births.	Marriages.	Deaths.
1854.....	2,105	78	2,027	1,017	1,720
1855.....	2,926	124	2,802	1,375	1,846
1856.....	2,906	183	2,723	1,535	2,042
1857.....	4,026	185	3,841	1,526	2,325
1858.....	4,263	177	4,086	1,438	2,616
1859.....	4,500	177	4,323	1,672	2,270
1860.....	4,660	167	4,493	1,748	2,686
1861.....	4,810	146	4,664	1,533	2,927
1862.....	4,125	123	4,002	1,450	2,591
1863.....	3,691	111	3,580	1,618	3,207
1864.....	3,892	138	3,754	1,844	3,360
1865.....	3,955	177	3,778	1,896	3,405
1866.....	4,902	172	4,730	2,318	2,970
1867.....	5,127	163	4,964	2,344	2,889
1868.....	5,372	212	5,160	2,285	2,912
1869.....	5,245	220	5,025	2,289	3,382
1870.....	5,215	231	4,984	2,362	3,238
1871.....	5,678	223	5,455	2,336	3,344
1872.....	6,143	202	5,941	2,547	4,247
1873.....	6,022	228	5,794	2,630	4,493
1874.....	6,466	277	6,189	2,541	4,229
1875.....	6,508	216	6,292	2,485	4,317
1876.....	6,329	224	6,105	2,253	4,116
1877.....	6,235	212	5,993	2,282	4,450
1878.....	6,714	218	6,496	2,324	4,441
1879.....	6,350	216	6,134	2,396	4,472
1880.....	6,295	192	6,103	2,769	4,829
1881.....	6,761	264	6,497	2,750	5,016

During the period of twenty-eight years, there were recorded 141,-251 births, of which number 5,349 were still-born, and 135,902 were living children.

During the same period, there were recorded 57,603 marriages, or 115,206 persons married, and 94,250 deaths.

On the next page the usual table is given, showing a comparison of the births, marriages and deaths, with the population, in each town in the State, for the year 1881.

TABLE XIV.

BIRTHS, MARRIAGES AND DEATHS IN RHODE ISLAND,  
IN 1881, COMPARED WITH THE POPULATION  
BY THE CENSUS OF 1880.

TOWNS AND DIVISIONS OF THE STATE.	Population in 1880.	Births in 1881.	To population one birth in.	Marriages in 1881.	To population one person married in.	Deaths in 1881.	Of population one death in.	Deaths in each 100 of the population.
Barrington.....	1,359	13	104.54	14	48.54	15	90.26	1.13
Bristol.....	6,028	147	41.00	51	59.10	112	53.82	1.85
Warren.....	4,007	79	50.72	56	35.72	77	52.04	1.92
BRISTOL COUNTY.....	11,394	239	47.66	121	47.08	204	55.85	1.79
Coventry.....	4,519	104	43.45	32	70.61	108	41.84	2.39
East Greenwich.....	2,887	67	43.09	49	29.46	57	50.67	1.97
West Greenwich.....	1,018	31	32.84	7	72.71	15	67.86	1.47
Warwick.....	12,164	263	46.25	102	59.63	159	76.50	1.31
KENT COUNTY.....	20,588	465	44.28	190	54.11	339	60.73	1.65
Jamestown.....	459	11	41.73	.....	.....	7	65.57	1.52
Little Compton.....	1,202	9	133.55	11	54.64	21	60.00	1.75
Middletown.....	1,139	24	47.46	5	113.90	15	76.00	1.32
New Shoreham.....	1,203	20	60.15	3	200.50	19	63.31	1.56
Portsmouth.....	1,979	40	49.47	9	109.94	25	79.16	1.26
Pt. Vernon.....	2,505	52	48.17	24	52.19	40	62.60	1.59
TOWNS, NEWPORT COUNTY.....	8,487	156	54.40	52	81.61	127	66.82	1.49
NEWPORT CITY.....	15,693	349	44.97	117	67.06	253	62.03	1.61
Barrillville.....	5,714	138	41.41	44	64.92	79	72.33	1.38
*Cranston.....	5,940	123	48.29	25	118.88	89	66.74	1.49
Cumberland.....	6,445	172	37.44	62	57.54	97	66.44	1.50
East Providence.....	5,056	124	40.77	45	56.18	87	58.11	1.72
Foster.....	1,552	15	103.43	22	35.27	32	48.50	2.06
Glocester.....	2,250	41	54.88	20	56.33	49	46.00	2.18
Johnston.....	5,765	139	41.49	27	106.86	60	96.08	1.04
Lincoln.....	13,765	432	31.87	99	69.49	318	43.28	2.31
North Providence.....	1,467	29	50.59	1	733.50	11	133.36	.75
North Smithfield.....	3,088	68	45.18	33	46.88	41	75.31	1.32
Pawtucket.....	19,030	519	36.66	236	40.32	342	55.64	1.79
Scituate.....	3,810	71	53.66	42	45.36	48	80.00	1.26
Smithfield.....	3,085	66	46.74	28	55.09	32	96.40	1.04
Woonsocket.....	16,050	441	36.39	176	45.64	315	51.00	1.96
TOWNS, PROVIDENCE COUNTY.....	93,017	2,378	39.11	860	54.08	1,681	55.33	1.82
PROVIDENCE CITY.....	104,857	2,803	37.47	1,202	43.61	2,145	48.80	2.05
Charlestown.....	1,117	13	85.92	14	39.89	11	101.54	.98
Exeter.....	1,310	20	65.55	12	54.54	23	57.00	1.76
Hopkinton.....	2,952	62	47.61	32	46.12	56	54.14	1.89
North Kingstown.....	3,949	99	39.88	29	68.09	58	68.08	1.47
South Kingstown.....	5,114	85	60.16	40	63.92	51	100.27	1.00
Richmond.....	1,949	32	60.91	6	162.42	26	75.00	1.33
Westerly.....	6,104	60	101.73	75	40.69	42	145.33	.69
WASHINGTON COUNTY.....	22,495	371	60.63	208	54.07	267	84.25	1.19
WHOLE STATE.....	276,531	6,761	40.90	2,750	50.28	5,016	55.13	1.81

\* Not including deaths in State Institutions.

The general results of registration in Rhode Island during twenty-eight years, as shown in Table XIII, give the proportions of living births to persons married and to decedents, as follows:

	Persons married.	Deaths.
To every 100 living births there were.....	84.77.....	and 69.35.

The same results show, that in the whole number of births, one in every 26.4 was still born, or 03.78 still born in each 100 births; and that for every still born child there were 25.4 living children, and for every death, not including the still born, there were 1.44 living births.

Comparing the results of registration in 1881, as shown in Table XIII, it will be seen that the whole number of births was 466 more than in the previous year, and 47 more than in 1878, which had previously shown the largest returns of births on record.

It will also be seen that the number of marriages and deaths have largely increased during the last two years, the number of marriages in 1881 though differing from that of 1880 by only 19, reached the number of 120 more than in any preceding year. The number of deaths exceeded that of 1880 by 120, and that of 1879 by 544.

In Table XIV may be found the number of each of the events of birth, marriage and death, in each of the several towns and cities in the State, and the proportion of the number of each of the same events, to the population in each of the towns, by the census of 1880.

Table XIV presents the same remarkable differences in the proportions to the population of these events in the different towns, as have been observed in previous reports.

#### BIRTHS.

The largest ratio of births occurring in any town during 1881, was in the town of Lincoln, in which town there was recorded one birth in every 31.87 of the inhabitants according to the census of 1880.

The smallest proportion of births to population, was in the town of Little Compton, in which town but one birth was recorded as against every 133.55 of the population.

In the case of Lincoln there were more than 3 births in each 100 of the inhabitants, or more than three per cent.; while in Little Compton there was only the proportion of less than three-fourths of one birth to each 100 persons, or less than three-fourths of one per cent. The ratio in Lincoln being more than four times larger than that in Little Compton.

Following closely the town of Lincoln in the order of largest ratio of births to population, are West Greenwich, one in every 32.84;

Woonsocket, one in every 36.39; Pawtucket, one in every 36.66; Cumberland, one in every 37.44; and Providence one in every 37.47.

In the order of exceptionally small proportion of births to population, following Little Compton, are Barrington, one in every 104.54 persons; Foster, one in every 103.43; Westerly, one in every 101.73.

The proportions of the several counties, the towns of Providence and Newport counties, the cities of Providence and Newport and the whole State, are as follows:

Bristol County.....	One birth in every 47.66 of the population.
Kent County.....	One birth in every 44.28 of the population.
Newport County, Towns.....	One birth in every 54.40 of the population.
Newport City.....	One birth in every 44.97 of the population.
Newport County.....	One birth in every 47.88 of the population.
Providence County, Towns.....	One birth in every 39.11 of the population.
Providence City.....	One birth in every 37.47 of the population.
Providence County.....	One birth in every 38.19 of the population.
Washington County.....	One birth in every 60.63 of the population.
Whole State.....	One birth in every 40.90 of the population.

#### MARRIAGES.

It has been remarked in previous annual reports on registration in Rhode Island, that the proportion of persons married in the different towns, to the population of the towns in which the marriages occurred, was much more variable than that of either births or deaths.

The circumstances that contribute to such results are so various, and so continuous from year to year, as to make the report of the percentages of the different towns, and especially the smaller towns, of but little practical value as indicative of the proclivity to matrimonial ventures of the resident citizens. But aggregated in counties, the statistics of marriage furnish sufficiently reliable data for determining the proportion to population with quite approximate exactness.

The ratio of persons married during the year 1881, to the population in each of the several counties by the census of 1880, was as follows:

Bristol County.....	One person married in every 47.08 of the population.
Kent County.....	One person married in every 54.11 of the population.
Newport County.....	One person married in every 70.65 of the population.
Providence County.....	One person married in every 47.98 of the population.
Washington County.....	One person married in every 54.07 of the population.

For the purpose of showing the difference between the aggregates of some of the country towns and the cities of Providence and Newport, the following summary is presented:

Towns, Providence County.....	One person married in every 51.08 of the population.
Providence City .....	One person married in every 43.61 of the population.
Towns, Newport County.....	One person married in every 81.61 of the population.
Newport City.....	One person married in every 67.06 of the population.

In the whole State, the proportion was one person married in every 50.28 of the population.

#### DEATHS.

The death rates in the different towns show very considerable variations as usual.

The town of Coventry leads in the unenviable distinction of showing the highest death rate of any town in the State, during the year 1881, that is, one death in every 41.84 of the inhabitants.

The lowest death rate, according to the returns, was in the town of Westerly, namely, one death in every 145.33 of the population.

It may very reasonably be questioned, if the returns of deaths in Westerly during 1881 are not needlessly defective. It seems hardly probable that the neighboring town of Hopkinton should have a percentage of mortality nearly three times as large.

The same remark may be made in regard to the returns of the town of North Providence, with a death rate of one in every 133.36 of the inhabitants, while the surrounding towns report a percentage of mortality very much greater.

It is to be taken into consideration that any town having a small birth rate will also have a small death rate, for the reason that mortality falls very largely on the periods of infancy and early childhood, and it is doubtless true that Westerly has a really smaller birth rate than a number of other towns in the State, but it may be surmised that incomplete returns of deaths may also have the counterpart of incomplete returns of births.

The same cannot be said of North Providence, however, that town reporting about an average birth rate, and a very low rate of mortality.

It is to be admitted, that very great differences in the number of births and deaths in any town may and do, though somewhat infrequently, occur in different years, but when any town, having a compact and variable or heterogeneous population, in whole or in part, returns in any year a rate of mortality of less than one, or even one and two-tenths per cent., it suggests a strong suspicion that the registration was incomplete.

The largest mortality in proportion to population, was reported from the town of Coventry, that is one death in every 41.84 persons, or 2.39 per cent., or about 24 deaths in each thousand of the inhabitants.

This town, in 1881, illustrated the great difference that may occur in one year as against or with another. During the year 1879 the proportion of deaths was about 14 in each thousand, and in 1880, about 13.5 in each thousand of the population.

Following Coventry, in the report of a high death rate, are Lincoln, one in every 43.28 persons, or about 23 deaths in each thousand; Gloucester, nearly 22 in each thousand; and Foster, more than 20.5 in each thousand of the population.

The rate of mortality in each of the four towns above mentioned, exceeds that of Providence city, which was rather less than 20.5 in each thousand of the population by the census of 1880, and when the increased population of Providence city is considered, the rate cannot have been at the largest estimate, above 20 decedents in each thousand, while the other towns, with the exception of Lincoln, have had but small increase of population since 1880.

Below may be found a summary of the ratios of mortality in the cities and larger divisions of the State, and the whole State.

Bristol County.....	17.9 in each one thousand of the population.
Kent County.....	16.5 in each one thousand of the population.
Towns, Newport County.....	14.9 in each one thousand of the population.
City of Newport.....	16.1 in each one thousand of the population.
Newport County.....	15.7 in each one thousand of the population.
Towns, Providence County.....	18.2 in each one thousand of the population.
City of Providence.....	20.5 in each one thousand of the population.
Providence County.....	19.3 in each one thousand of the population.
Washington County.....	11.9 in each one thousand of the population.
Whole State.....	18.1 in each one thousand of the population.

The following summary will present, in a condensed form, the proportional results of registration in the different cities and counties during 1881:

	Marriages.		
	Births. One in every	One person married in every	Deaths. One in every
Bristol County.....	47.66.....	47.08.....	55.85
Kent County.....	44.28.....	54.11.....	60.73
Newport County.....	47.88.....	70.65.....	63.63
Providence County.....	38.19.....	47.98.....	51.81
Washington County.....	60.63.....	54.07.....	84.25
Newport City.....	44.97.....	67.06.....	62.03
Providence City.....	37.47.....	43.61.....	48.80
Whole State.....	40.90.....	50.28.....	55.13

In order that the different events of births, marriages and deaths in the State during the year 1881, may be more readily compared with those of the preceding two years, the following Table is introduced:

TABLE XV.

*Births, Marriages and Deaths in Rhode Island, in each of the three years 1879, 1880 and 1881.*

TOWNS AND DIVISIONS OF THE STATE.	Births in 1879.	Births in 1880.	Births in 1881.	Marriages in 1879.	Marriages in 1880.	Marriages in 1881.	Deaths in 1879.	Deaths in 1880.	Deaths in 1881.
Barrington.....	19	17	13	11	12	14	12	21	15
Bristol.....	135	181	147	40	30	51	82	121	112
Warren.....	86	80	79	43	55	56	56	77	77
BRISTOL COUNTY.....	240	278	239	94	97	121	150	219	204
Coventry.....	75	67	104	28	45	32	64	61	108
East Greenwich.....	56	53	67	36	43	49	42	53	57
West Greenwich.....	24	23	31	6	8	7	22	23	15
Warwick.....	277	297	263	101	121	102	183	169	159
KENT COUNTY.....	432	440	465	171	217	190	311	306	339
Jamestown.....	6	5	11	4	2	.....	2	2	7
Little Compton.....	13	14	9	3	3	11	12	15	21
Middletown.....	26	29	24	2	6	5	15	16	15
New Shoreham.....	17	10	20	4	13	3	6	6	19
Poquonoch.....	30	32	40	9	11	9	22	26	25
Tiverton.....	48	50	52	25	36	24	38	42	40
TOWNS, NEWPORT COUNTY.....	140	140	156	47	71	52	95	107	127
NEWPORT CITY.....	303	399	349	122	123	117	264	243	253
Burrillville.....	138	125	138	30	42	44	76	105	79
Cranston.....	113	120	123	11	22	25	121	116	170
Cumberland.....	154	143	172	45	56	62	81	107	97
East Providence.....	168	124	124	27	40	45	93	77	87
Foster.....	25	22	15	43	26	22	23	21	32
Glocester.....	47	46	41	24	19	20	33	42	49
Johnston.....	129	146	139	22	22	27	46	81	60
Lincoln.....	283	219	432	75	90	99	190	188	318
North Providence.....	41	29	29	2	..	1	12	16	11
North Smithfield.....	85	21	68	29	27	33	39	45	41
Pawtucket.....	483	404	519	172	201	236	319	351	342
Scituate.....	71	78	71	46	31	42	46	58	48
Smithfield.....	61	56	66	11	18	28	24	33	32
Woonsocket.....	370	371	441	160	187	176	274	318	315
TOWNS, PROVIDENCE COUNTY.....	2,268	1,984	2,378	697	784	860	1,377	1,588	1,681
PROVIDENCE CITY.....	2,522	2,626	2,803	1,071	1,231	1,202	2,026	2,080	2,145
Charlestown.....	15	13	13	7	13	14	17	15	11
Exeter.....	31	30	20	13	14	12	16	20	21
Hopkinton.....	55	62	62	41	60	32	26	34	56
North Kingstown.....	96	90	99	27	35	29	46	67	58
South Kingstown.....	100	88	85	39	36	40	59	40	51
Richmond.....	48	41	32	7	3	6	21	33	26
Westerly.....	100	104	60	60	85	75	64	77	42
WASHINGTON COUNTY.....	445	428	371	191	246	208	219	286	267
WHOLE STATE.....	6,350	6,295	6,761	2,396	2,769	2,750	4,472	4,829	5,016

TABLE XVI.

*Showing the proportions of Births, Marriages and Deaths, to the population, in the aggregate for the whole State, in each of the last thirteen years.*

YEARS.	BIRTHS.		MARRIAGES.		DEATHS.		
	Number.	To population one birth in	Number.	Of population one person married in	Number.	Of population one death in	Deaths in each 100 of the population.
1869.....	5,245	41.4	2,289	47.5	3,382	64.2	1.56
1870.....	5,215	41.7	2,362	46.0	3,238	67.1	1.49
1871.....	5,678	38.2	2,336	46.5	3,344	65.0	1.54
1872.....	6,143	35.4	2,537	42.9	4,247	51.2	1.95
1873.....	6,022	36.1	2,630	41.3	4,403	49.4	2.03
1874.....	6,466	39.9	2,541	50.8	4,229	61.1	1.64
1875.....	6,508	39.7	2,485	52.0	4,317	59.8	1.67
1876.....	6,329	40.8	2,253	57.3	4,116	62.7	1.59
1877.....	6,235	41.4	2,282	56.6	4,450	58.0	1.72
1878.....	6,714	38.5	2,324	55.7	4,441	58.1	1.72
1879.....	6,350	43.6	2,396	57.8	4,472	61.9	1.60
1880.....	6,295	43.9	2,769	49.9	4,829	57.3	1.75
1881 .. .. .	6,761	40.9	2,750	50.3	5,016	55.1	1.81

The number of births recorded in the State of Rhode Island during the year 1881, as heretofore observed, was larger than in any year during the existence of the State. But although the number was larger, the proportion to the population was considerably smaller than in several of the previous years, and particularly in 1872, as shown in the above Table.

The proportion during 1881 was about 24.5 births in each 1,000 of the population by the census of 1880; the proportion during 1872 was about 28.2 births in each 1,000 of the population by the census of 1870.

Making two periods, of five years each, of the last ten years, it will be found that the proportion of births to population was about 26, annually, in each thousand persons, in the first series, and about 24, annually, in each thousand, in the last series of five years.

Each of these periods commences two years after a State enumeration of the population, and may therefore fairly represent the difference in the relative proportions of births to population, in each period.

The proportion to the population of persons married during the two periods was, as compared together, similar to that of births.

During the first period the proportion was about 20.5 persons married annually, in each thousand persons, and during the second period about 18.3 persons married annually, in each thousand.

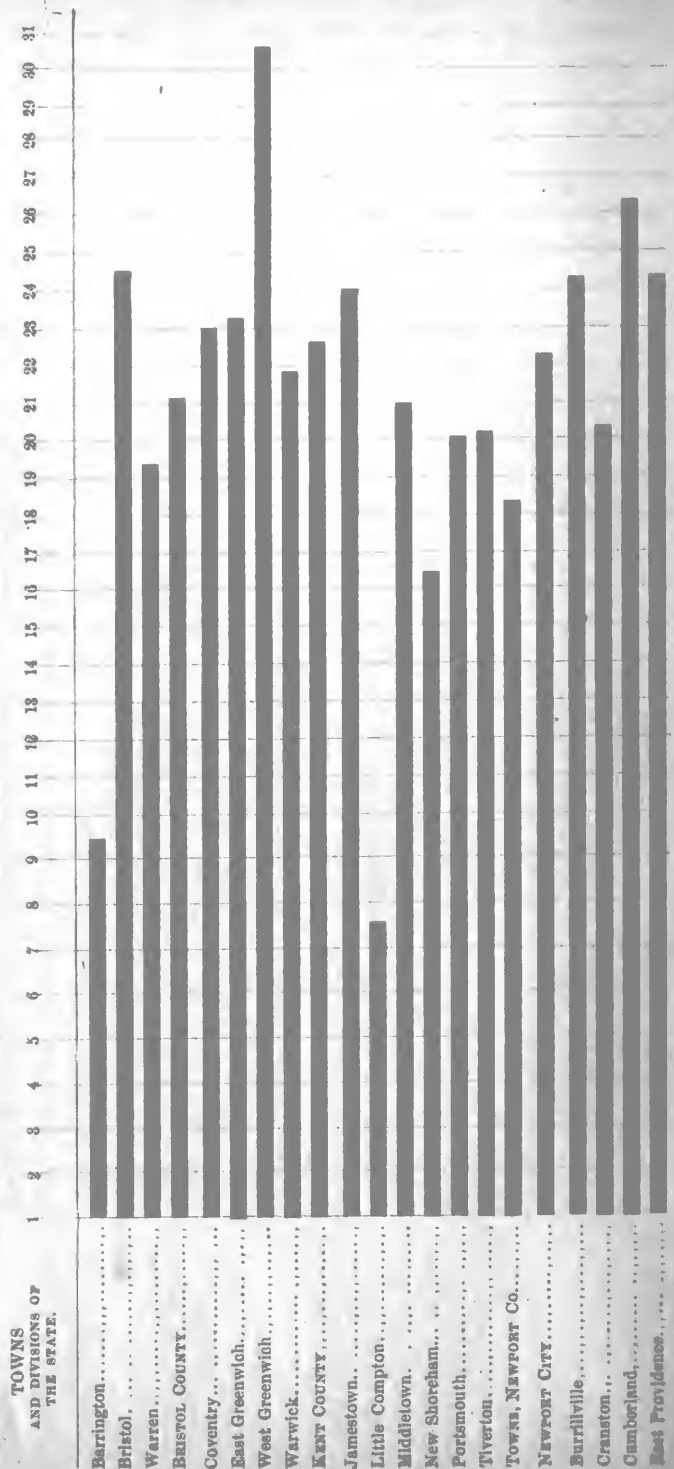
The proportion of deaths to population, during each of the same periods, was as follows: First period, 17.7 decedents annually in each thousand persons; Second period, 17.2 decedents annually in each thousand persons.

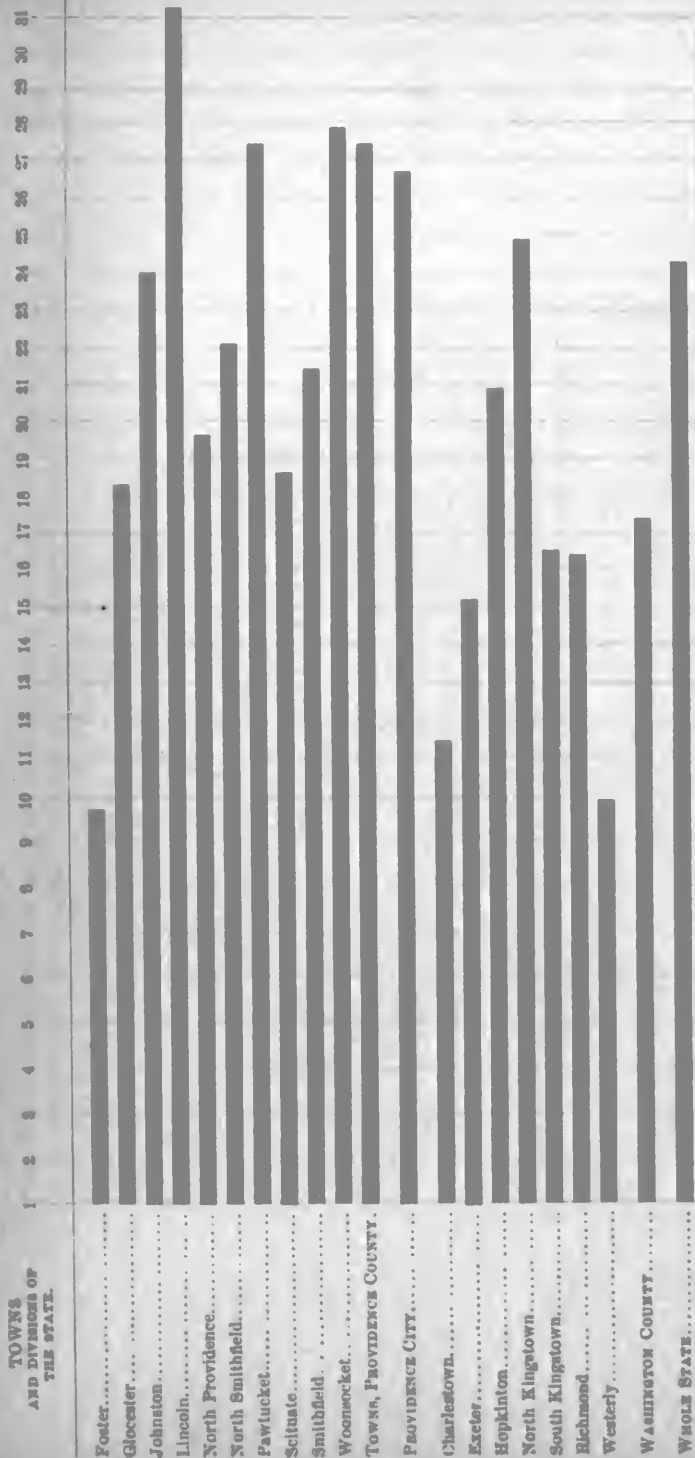




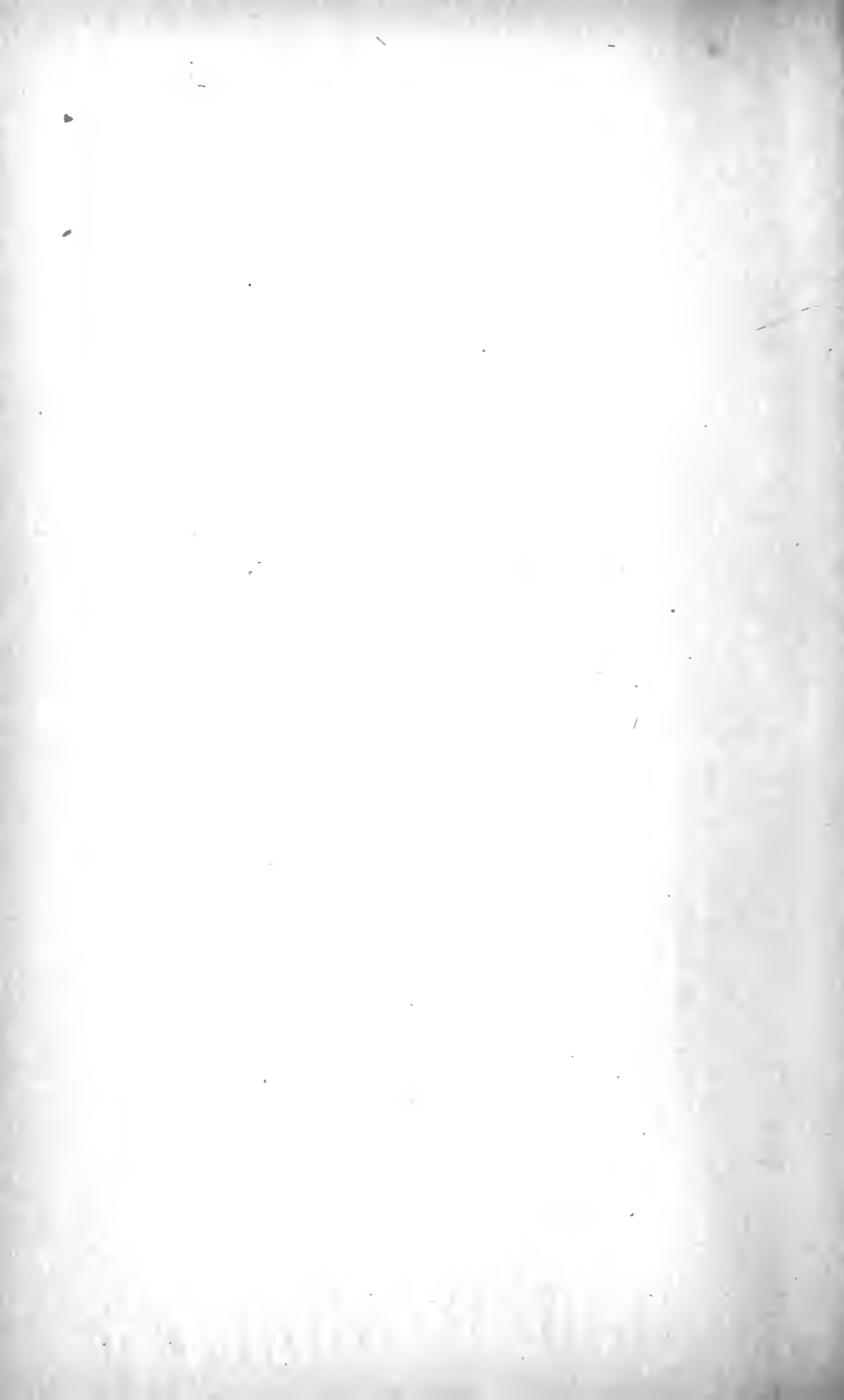
## BIRTH RATES.

Diagram showing the number of births in each 1000 of the population, in each town and in each county in the State, during the year 1891.





The figures at the top of the perpendicular lines indicate, in whole numbers, the number of births during the year in every 1000 persons. The spaces are fractional parts of one. For instance, the heavy horizontal line against Barrington reaches half-way between the perpendicular lines 9 and 10. It shows the birth rate of Barrington, in 1881, was about nine and one-half in each 1000 of the population.



## BIRTHS, 1881.

The general statistics of births in Rhode Island during the year 1881, derived from the returns sent to this office, may be found on pages 2 to 6 inclusive, in Tables I, II and III.

The whole number reported is 6,761, and, as before stated, is 466 more than that of 1880.

### SEX OF THE CHILDREN BORN.

Of the 6,761 children whose births were reported in 1881, there were 3,498 males and 3,263 females. This gives 107.2 males to each 100 females, or 51.73 males and 48.27 females in each 100 children.

The following recapitulatory Table shows the numbers and sex, and the proportions of each sex of the children born in Rhode Island, in each of the last twenty-eight years:

TABLE XVII.

Years.	Males.	Females.	Males to each	
			100 Females.	Males, Females.
1854.....	1,081.....	1,003.....	107.8, or.....	51.87 and 48.13 in each 100
1855.....	1,492.....	1,421.....	105.0, or.....	51.22 and 48.78 in each 100
1856.....	1,479.....	1,407.....	105.1, or.....	51.25 and 48.75 in each 100
1857.....	2,057.....	1,948.....	105.6, or.....	51.36 and 48.64 in each 100
1858.....	2,200.....	2,053.....	107.2, or.....	51.73 and 48.27 in each 100
1859.....	2,209.....	2,097.....	105.3, or.....	51.30 and 48.70 in each 100
1860.....	2,263.....	2,212.....	102.3, or.....	50.57 and 49.43 in each 100
1861.....	2,531.....	2,291.....	110.5, or.....	52.49 and 47.51 in each 100
1862.....	2,152.....	1,967.....	109.4, or.....	52.25 and 47.75 in each 100
1863.....	1,892.....	1,288.....	105.8, or.....	51.41 and 48.59 in each 100
1864.....	1,949.....	1,942.....	100.3, or.....	50.09 and 49.91 in each 100
1865.....	2,096.....	1,857.....	112.9, or.....	53.02 and 46.98 in each 100
1866.....	2,546.....	2,356.....	108.0, or.....	51.94 and 48.06 in each 100
1867.....	2,665.....	2,464.....	107.0, or.....	51.87 and 48.13 in each 100
1868.....	2,745.....	2,627.....	104.5, or.....	51.10 and 48.90 in each 100
1869.....	2,685.....	2,560.....	104.9, or.....	51.19 and 48.81 in each 100
1870.....	2,679.....	2,536.....	105.6, or.....	51.37 and 48.63 in each 100
1871.....	2,878.....	2,800.....	102.8, or.....	50.69 and 49.31 in each 100
1872.....	3,085.....	3,058.....	100.9, or.....	50.22 and 49.78 in each 100
1873.....	3,135.....	2,887.....	108.6, or.....	52.06 and 47.94 in each 100
1874.....	3,311.....	3,155.....	104.9, or.....	51.21 and 48.79 in each 100
1875.....	3,362.....	3,146.....	106.9, or.....	51.66 and 48.34 in each 100
1876.....	3,291.....	3,038.....	108.3, or.....	52.00 and 48.00 in each 100
1877.....	3,163.....	3,072.....	103.0, or.....	50.73 and 49.27 in each 100
1878.....	3,402.....	3,312.....	102.7, or.....	50.67 and 49.33 in each 100
1879.....	3,259.....	3,091.....	105.4, or.....	51.32 and 48.68 in each 100
1880.....	3,241.....	3,054.....	106.8, or.....	51.48 and 48.52 in each 100
1881.....	3,498.....	3,263.....	107.2, or.....	51.73 and 48.27 in each 100

The number of male children born in Rhode Island, during 1881, according to the returns, was larger by 257 than that of 1880, and larger by 96 than in any previous year.

The number of female children whose births were recorded in the State, during the year 1881, was larger by 209 than that recorded during 1880, and larger than in any previous year, with the exception of 1878, during which year the recorded number of female children born was larger by 49 than in 1881.

#### PROPORTION OF THE SEXES.

The proportion of each sex to the whole number varies more or less every year, as might reasonably be expected.

In Table II, on pages four and five, may be found the number of the children born in the different divisions of the State during the year, and in the several months of the year, with the number of each sex respectively.

The following Table will present, in a more concise manner, the whole number of children of each sex, and of both sexes, in each division, whose births were recorded during 1881, and also the number of males to each 100 females in the same.

TABLE XVIII.

BIRTHS, 1881.	Bristol County.	Kent County.	Newport County, Towns.	Providence County, Towns.	Washington County.	Newport City.	Total.	Providence City.	Whole State.
Males.....	114	245	80	1,223	199	175	2,036	1,462	3,498
Females.....	125	220	76	1,155	172	174	1,922	1,341	3,263
Total.....	239	465	156	2,378	371	349	3,958	2,803	6,761
Males to each 100 Females..	91.2	111.3	105.3	105.9	115.7	100.6	105.9	109.0	107.2

A very considerable variation will be noticed in the above Table, in the proportion of the sexes in the different localities. While in Bristol county there were only 91.2 males, to each 100 females, whose births were recorded during 1881, there were in Washington county 115.7 males to each 100 females. This extreme difference for 1881 is, however, very much smaller than that of several previous years. This subject will be further considered, when the differences during a period of nineteen years are presented, on another page.

The number of male children born in Rhode Island has always been larger, in every year, than the number of female children.

Table XVII shows the varying proportions during twenty-eight years. It will be seen, in that Table, that the excess of male births was very small in several of the given years, varying from 100.3 males to each 100 females, in 1864, to 112.9 males to each 100 females in 1865.

In 1881 the male births were in excess in every county except Bristol, which usually has the largest proportion of male births of any county in the State.

It will be seen, in Table XVIII, that in Newport city the proportions of the sexes were almost exactly alike. In 1880 the proportion was 105.6 males to each 100 females. The differences in Newport county towns of the proportions of the sexes born, during the two years respectively, show how large the variations sometimes are from year to year.

In 1880, in Newport county towns, the births were 137.3 males to each 100 females; or 57.86 males and 42.14 females in each 100 children born.

In 1881, in the same towns, the births were 105.3 males to each 100 females; or 51.28 males and 48.72 females in each 100 children born.

The following summary will show the proportions of the sexes born during 1881, in several of the larger towns in the State:

	Males.	Females.	Males to each 100 Females.
Warwick.....	152.....	145.....	104.8
Lincoln.....	153.....	146.....	104.8
Pawtucket.....	202.....	202.....	100.0
Woonsocket.....	182.....	189.....	96.3

In the city of Providence, the State outside the city of Providence, and the whole State, the proportions were as follows:

	Males.	Females.	Males to each 100 Females.
City of Providence.....	1,462.....	1,341.....	109.0
Rest of State.....	2,036.....	1,922.....	105.9
Whole State.....	3,498.....	3,263.....	107.2

The following Table shows the relative proportions of the sexes, in each of the last nineteen years, in each of the larger divisions of the State, and in the whole State:

TABLE XIX.

NUMBER OF MALES TO EACH 100 FEMALES.

BIRTHS.	Bristol County.	Kent County.	Newport County.	Providence County, Towns.	Providence City.	Washington County.	Whole State.
1863.....	120.0	98.4	97.0	101.8	111.4	108.7	105.8
1864.....	106.8	87.3	90.6	107.4	97.3	103.4	100.3
1865.....	119.3	118.2	108.8	118.9	113.8	88.1	112.9
1866.....	109.4	113.1	103.4	104.9	108.4	124.0	108.0
1867.....	115.5	98.3	117.8	106.3	104.5	120.4	107.7
1868.....	117.4	88.7	100.2	101.6	102.4	136.5	104.5
1869.....	115.7	116.7	102.7	98.0	107.5	120.6	104.9
1870.....	126.4	111.6	100.0	105.1	104.9	99.5	105.6
1871.....	131.8	97.9	132.5	100.8	95.2	113.3	102.8
1872.....	109.2	92.8	109.1	103.5	95.7	110.6	100.9
1873.....	129.2	113.0	117.9	104.5	109.0	104.7	108.6
1874.....	98.7	111.9	101.3	110.4	102.9	94.0	104.9
1875.....	95.2	103.1	97.7	104.3	109.1	134.3	106.9
1876.....	142.1	104.4	108.5	108.0	106.8	103.7	108.3
1877.....	138.7	102.4	98.5	100.3	104.9	95.3	103.0
1878.....	120.5	120.6	94.8	101.5	106.8	78.8	102.7
1879.....	124.3	95.5	103.6	105.4	105.7	106.3	105.4
1880.....	117.2	110.5	113.0	102.4	107.6	95.4	106.1
1881.....	91.2	111.3	102.0	105.9	109.0	115.7	107.2

The varying proportion of the sexes of the children born in the different localities or divisions of the State, in different years, is very clearly shown in the above Table. Thus, Bristol county, which has had the largest average proportion of males to females in the births of any division of the State, during the eighteen years previous to 1881, fell behind every other division in that proportion in 1881.

The proportion of 91.2 males to each 100 females, in Bristol county, is smaller, with three or four exceptions, than has occurred in any other division of the State, in any year during the last eighteen.

During the five years previous to 1881, this county reported an average proportion of 128.5 males to each 100 females.

The only occurrences, in any division in any year, of smaller proportions of male births to female births, than reported from Bristol county in 1881, were in Kent county, in 1864, 87.3 males, and in

1868, 88.7 males to each 100 females; and in Washington county, in 1865, 88.1 males, and in 1878, the extremely low and minimum proportion of all divisions and years, that is, 78.8 males to each 100 females.

#### BIRTHS: SEX AND SEASON.

In Table II, on page 4, will be found the number of births, as they occurred in the different divisions of the State, during the year 1881, arranged by the several months, and by the sexes. From it we ascertain the number of each of the sexes born during each quarter of the year, with their relative proportions, and also the aggregates and proportions of the same for the whole State.

The following Table will present a summary of the quarterly periods, number of births and proportion of the sexes, for the same:

	Males to each					
	Males.	Females.	100 Females.	Males.	Females.	
1. January—March.....	820	714	113.4, or.....	53.46	and 46.54	in each 100
2. April—June.....	833	828	100.6, or.....	50.15	and 49.85	in each 100
3. July—September....	906	840	107.8, or.....	51.32	and 48.68	in each 100
4. October—December....	939	881	106.6, or.....	57.60	and 48.40	in each 100
<hr/>						
Whole year, 1881.....	3,498	3,263	107.2, or....	51.73	and 48.27	in each 100

The following Table shows the number of male children born, to each 100 female children, in each quarter of the last six years, and also the proportion of births of male children, to each 100 female children born, during two periods of five years each, from 1866 to 1875 inclusive:

TABLE XX.

YEARS.	1881.	1880.	1879.	1878.	1877.	1876.	5 years. 1871-1875.	5 years. 1866-1870.
1st Quarter.....	113.4	109.7	104.6	106.6	107.9	105.7	101.5	106.7
2d Quarter.....	100.6	98.2	104.2	98.9	103.1	109.2	104.7	107.3
3d Quarter.....	107.8	103.4	101.6	103.8	97.6	108.0	104.8	106.0
4th Quarter.....	106.6	113.0	111.4	102.0	104.2	110.4	106.5	104.8
Total average.....	107.2	106.1	105.4	102.7	103.0	108.3	104.2	106.2

It will be seen, by the preceding Table, that the proportion of the

sexes follows no uniform rule in the different quarters of the year, hardly any two quarterly periods showing precisely the same proportions during a period of many years.

During the period of five years from 1871 to 1875 inclusive, the average proportion of males born, in the first quarter of each year, was 101.5 to each 100 female births, while in 1881 the proportion was 113.4 male to each 100 female births.

The proportion of sexes of the children born in the first quarter of 1881, shows a larger difference than in any previous year during the whole period of registration.

The total average of the several quarters of the year 1881, that is, 107.2 male to each 100 female births, is also larger in the proportion of male births than the average of twenty-eight years.

The following summary will show the number and sex of the children born in the State, in each quarter of the year, and also the proportions of the sexes in each quarter, in the aggregate of a period of twenty years next preceding 1880

Males to each					
	Males.	Females.	100 Females.	Males.	Females.
1. January—March..	12,912	12,202	105.8, or	51.41	48.59
2. April—June...	13,006	12,226	106.4, or	51.55	48.45
3. July—September....	14,188	13,611	104.3, or	50.85	49.15
4. October—December...	14,971	14,072	106.4, or	51.55	48.45
<hr/>					
Whole No. 20 years.....	55,077	52,151	105.6, or	51.37	48.63

It will be seen that the greatest average difference between the numbers of the sexes born, in the different quarters, is between the third quarter; and the second and fourth, which are alike. This difference of 104.3 males to each 100 females, in the third quarter, or about 1.7 per cent. of males in excess of females in each 100 children born of both sexes, compared with the largest average of any quarter, that is, 106.4 males to each 100 females, or about 2.7 per cent. of males in excess of females, is not strongly confirmatory of a belief that season has any largely decided influence in the causation of sex.

#### BIRTHS AND SEASON.

Whether some months in the year are, in the long run, more prolific in the number of children born, in Rhode Island, than other months, has apparently an affirmative answer in the results of twenty-eight years' registration. The affirmative seems, however, to be more true in regard to country than to city life, as will be shown on another

page, and the difference has been questioned, as to the matter of fact, by the suggestion that incomplete registration may account for that difference.

Admitting that more births, occurring in the first half of the year, would fail of being reported to the canvasser than of those occurring in the last half, it is hardly probable that the number unreported would make up the entire difference in the results.

The following Table shows the total number of children born in the State of Rhode Island, according to the returns, in each quarter of each of the last eight years; and also the aggregate number and the percentages of the aggregate in each quarter of the last twenty-eight years, from 1854 to 1881 inclusive:

TABLE XXI.

QUARTERS.	1881.	1880.	1879.	1878.	1877.	1876.	1875.	1874.	1854 to 1881.	
									Number.	Per cent.
January—March.....	1,534	1,521	1,465	1,622	1,399	1,524	1,546	1,485	33,457	23.68
April—June.....	1,661	1,483	1,556	1,565	1,406	1,496	1,608	1,555	33,259	23.54
July—September.....	1,746	1,640	1,653	1,731	1,674	1,668	1,668	1,682	36,985	26.02
October—December....	1,820	1,651	1,676	1,796	1,756	1,641	1,686	1,744	37,550	26.76
Whole year.....	6,761	6,295	6,350	6,714	6,235	6,329	6,508	6,466	141,251	100.00

The average order of the occurrence of births in Rhode Island, in the different quarters of the year, during a period of twenty-eight years, as will be seen by the above Table, running from the smallest to the largest number, has been as follows, viz.: second, first, third, fourth. The returns for 1881 do not show exactly the same result, the first quarter having the smallest number. But the year 1881 follows the rule of the long period in returning a considerably smaller number during the first than during the last half of the year, the difference being greater than in 1880, in which year the proportions stood 47.7 of the whole number during the first half, and 52.3 during the last half, as against 47.3 in the first and 52.7 in the last half of 1881, and the average of 47.2 during the first, and 52.8 during the last half of the years composing the long period.

It has been mentioned, in previous reports, that in the city of Providence, where the events of birth are collected semi-annually, the difference in the number between the first and last halves of the year is much less, and that fact suggests the probability of incomplete collection of the occurrences of birth in localities where the collection

is deferred to the commencement of the following year; but with the admission of that probability there is, as previously remarked, evidence of a larger birth rate in the last half of each year.

The following summary will show the percentages of births in the whole State of the different quarters and of each half of the year 1881:

January—March.....	22.7 per cent. of whole number.	} First half..... 47.3 per cent.
April—June.....	24.6 per cent. of whole number.	
July—September.....	25.8 per cent. of whole number.	} Second half.... 52.7 per cent.
October—December.....	26.9 per cent. of whole number.	
	100.0	100.0

#### PARENTAGE.

By reference to Table I., page 2, in the division of births, there will be found the parentage of the children born in Rhode Island during the year 1881. It will be seen that of the whole number—6,761—there were 2,859 of American parentage, 2,798 foreign, and 1,104 of mixed parentage.

The following Table will show the parentage of the children born in the State, and the variations of the same from year to year, in each of the last five years, and also the number and variations occurring in four periods of five years each, from 1858 to 1877 inclusive:

TABLE XXII.

PARENTAGE.	1881.	1880.	1879.	1878.	1877.	5 years. 1873 to 1877.	5 years. 1868 to 1872.	5 years. 1863 to 1867.	5 years. 1858 to 1862.
American father and mother..	2,859	2,741	2,767	2,887	2,665	13,431	12,214	9,712	10,609
Foreign father and mother....	2,798	2,555	2,573	2,848	2,642	13,990	12,366	9,968	9,697
Amer. father and For. mother.	493	417	442	463	416	11,782	1,353	876	814
For. father and Amer. mother.	611	582	568	516	512	2,357	1,720	941	755
Parentage not stated .....	.....	.....	.....	.....	.....	.....	.....	70	223
Total.....	6,761	6,295	6,350	6,714	6,235	31,560	27,653	21,567	22,098

The following Table of *percentages* may be preferred, as showing in a different, and perhaps clearer way, the changes that have occurred in the proportions of the births in the different classes of parentage during the last six years, and during twenty years from 1858 to 1877 inclusive, in four equal periods:

TABLE XXIII.

PARENTAGE.	1881.	1880.	1879.	1878.	1877.	1876.	5 years. 1873 to 1877.	5 years. 1868 to 1872.	5 years. 1863 to 1867.	5 years. 1858 to 1862.
American fath. and mo.	42.29	43.55	43.57	43.00	42.74	40.81	42.55	44.17	45.18	48.50
Foreign fath. and mo...	41.38	40.60	40.53	42.82	42.38	45.40	44.35	44.72	46.37	44.33
Am. fath. and For. mo.	7.29	6.62	6.96	6.35	6.67	5.59	5.84	4.89	4.07	3.72
For. fath. and Am. mo.	9.04	9.23	8.94	7.83	8.21	8.17	7.26	6.22	4.38	3.45
Total.....	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

The preceding Tables, XXII and XXIII, are interesting as showing the movements of population in Rhode Island, in the two larger general classes, in the results of nearly a quarter of a century of annual birth records.

It will be seen that in the first period of five years, 1858 to 1862 inclusive, the number of children born of purely American parentage was 48.5 per cent. of the whole number, and of children born of American *fathers* the percentage was 52.2 of the whole number.

In contrast with these figures, the percentage of births of purely foreign parentage was 44.3 per cent. of the whole, and of children born of foreign *fathers* the percentage was 47.8 of the whole number.

The percentage of children of American fathers and foreign mothers was during that period about 3.7 per cent. of all, and the children of foreign fathers and American mothers 3.5 per cent. of all.

In continuation of the comparisons of the proportional birth rates of the different classes the following Table will be of manifest assistance:

TABLE XXIV.

CHILDREN WITH	1881.	1880.	1879.	1878.	1877.	1876.	5 years. 1873 to 1877.	5 years. 1868 to 1872.	5 years. 1863 to 1867.	5 years. 1858 to 1862.
American fathers.....	49.58	50.17	50.53	49.89	49.41	46.43	48.40	49.06	49.25	52.22
Foreign fathers.....	50.42	49.83	49.47	50.11	50.59	53.57	51.60	50.94	50.75	47.78
American mothers.....	51.33	52.78	52.51	50.68	50.95	49.01	49.80	50.39	49.56	51.95
Foreign mothers.....	48.67	47.22	49.49	49.32	49.05	50.99	50.20	49.61	50.44	48.05

The above Table shows the proportional percentages of children born of American and of foreign fathers, and of American and foreign mothers, in each of the last six years, and in each of four periods, of five years each, from 1862 to 1881 inclusive.

It will be seen that the proportion of children of American fathers in the first period of five years, 1858 to 1862 inclusive, was 52.2 in each 100 children born, the proportion then gradually declined, until in the fourth period, from 1873 to 1877 inclusive, the proportion was 48.4 in each 100 births, and in the single year 1876 only 46.4 in each 100 births. The proportions since 1876 have increased, with slight variations, from year to year, to an average of about 50.4 of American fathers in each 100 children born, or a difference of about four in each one hundred.

Of American mothers, the proportion of children born has been less fluctuating than of American fathers.

During the first period of five years from 1858 to 1862 inclusive, the average annual proportion was 51.9 in each 100 births, running down to 49.0 in each 100 in 1876, and then rising with slight variations to about 52.8 in 1880, and 51.3 in each 100 births in 1881.

Of foreign fathers, the proportions of children born, have varied from an average of 47.8 in each 100 during the period of five years 1858 to 1862 inclusive, to the maximum of 53.6 in the year 1876, and with varying proportions one year with another, to 50.4 in each 100 births in 1881.

Of foreign mothers, the proportions of children born, in the different years, and different periods of years, were less variable than of foreign fathers. In the aggregate of twenty years from 1858 to 1877, the average annual proportion was 48.8 in each 100 births, and varying in no year more than three per cent. from that of any other. Since 1877 the greatest difference was between the year 1879, with 49.5 per cent. of the whole number of births, and 1880, with 47.2 per cent.: that is a difference of 2.3 per cent. of the whole number of births of that class in each year.

It will be noticed that the greatest variation of proportion of births, of any class of sex of parents, was in the class of foreign fathers, or 5.8 in each 100 children born of that class.

It will be particularly noticed in Table XXIII, that during the period of twenty-four years, from 1858 to 1881 inclusive, the greatest changes have occurred in the classes of mixed parentage, that is, of of American father and foreign mother, and "vice versa."

The coalescence by matrimony of representatives of different nationalities, on Rhode Island soil, is very definitely presented in the Table, showing increased percentage of children born of mixed parentage.

During the first period of five years, from 1858 to 1862 inclusive, the proportion of children born of American father and foreign

mother was about 3.7 in each 100 births. The percentage has gradually increased from year to year with very little variation, and in 1881 the proportion was about 7.3 in each 100 births, or nearly twice as large.

In the class of foreign father and American mother, it will be seen that, during the same first period of five years, the proportion of children born was about 3.4 in each 100 births, also gradually increasing without great variation to the year 1880, when it was 9.2; and 1881, when it was 9.0 in each 100 births, or nearly three times as large.

#### PARENTAGE. PROPORTION TO POPULATION, 1881.

It will doubtless be of interest to compare the number of births in the different classes of parentage, with the population of the same. It will be seen, in Table XXIV, that of the whole number of births in 1881 there was the proportion of 49.58 per cent. of American fathers, and 50.42 per cent. of foreign fathers. Now let us see how those proportions agree with the populations of the same classes respectively.

According to the United States census of 1880, the population of Rhode Island by parentage was as follows:

Fathers of American parentage.....	139,117, or.....	50.31 per cent.
Fathers of foreign parentage.....	137,414, or.....	49.69 per cent.
Proportion of Population of American fathers, 1880.....		50.31 per cent.
Proportion of children born of American fathers, 1881....		49.58 per cent.
Proportion of population of foreign parentage by fathers, 1880.....		49.69 per cent.
Proportion of children born of foreign parentage by fathers, 1881.....		50.42 per cent.

It will be seen that in 1881 the percentage of children born of American fathers was less than the percentage of American fathers to the whole population of the State, and that the percentage of children born of foreign fathers was larger than the percentage of foreign fathers to the whole population.

These facts are in accordance with the rule of all the years, with scarcely an exception, during which such comparisons could be made.

But, unless the immigration of foreign born males, or of males of foreign parentage should continue largely, the tables will in a short period be turned, because the grandchildren of the foreign born, whose fathers were born on American soil, will be enumerated as of American parentage. And it should be remembered that a very considerable number of those enumerated as American fathers, because

born on American soil, are the sons of parents born on a foreign soil, and their children, although classed as of American nativity, are really of foreign parentage by consanguinity.

Reckoning the parentage by the fathers, there were several towns in Providence county, in which the number of children born in 1881, of foreign parentage, was largely in excess of those of native parentage, as will be seen by referring to Table I, pages 2 and 3, and also as follows:

	Native.	Foreign.
Burrillville.....	55.....	83
Cumberland.....	58.....	114
Lincoln.....	110.....	322
North Smithfield.....	25.....	43
Woonsocket.....	93.....	348

#### COLORED CHILDREN.

The number of births of colored children are always included in the general statistics of births, and therefore have a place in the preceding tables. For various reasons they have separate consideration. The number reported in 1881 was 192, which is considerably larger than in any preceding year. The number returned in 1879 was 159; and in 1880 the number was 140; or 52 less than in 1881.

With reference to sex, the numbers and proportions were as follows: males, 101; females, 91; or 52.6 males, and 47.4 females in each 100 colored children born; or 111.0 males to each 100 females.

The proportions of the sexes of the colored children, born in different years in Rhode Island, have been singularly changeable, as the following summary will show:

Years.	Whole No.	Males.	Females.	
1876.....	171.....	64.....	107..	or 59.8 males to each 100 females.
1877.....	168.....	86.....	82...	or 104.8 males to each 100 females.
1878.....	172.....	79.....	93.....	or 85.0 males to each 100 females.
1879.....	159.....	84.....	75.....	or 113.5 males to each 100 females.
1880...	140.....	75.....	65.....	or 115.4 males to each 100 females.

Perhaps if the number from year to year had been ten or fifteen times larger, the disproportions would have been less, as the sexes of white children born have varied considerably, one year with another, where smaller numbers were reported, as in the smaller populations. For instance:

## 1880.

Whole			
No.	Males.	Females.	The proportion of
Barrington..... 17 .....	10.....	7, or.....	143.0 males to each 100 females.
Bristol.....181.....	106....	75, or....	141.3 males to each 100 females.
Warren. .... 80.....	34.....	46, or.....	73.9 males to each 100 females.

## 1881.

Whole			
No.	Males.	Females.	The proportion of
Barrington..... 13.....	4... ..	9, or.....	44.4 males to each 100 females.
Bristol.....147.....	67 .....	80, or.....	83.7 males to each 100 females.
Warren..... .. 79.....	43.....	36, or.....	120.0 males to each 100 females.

## NUMBER OF THE CHILD OF THE MOTHER.

The number and proportion of births to population, as shown in the preceding statistics, and the capacity of the mothers for continuous child bearing, as will be shown in the following statistics, give some knowledge of the physical vigor (and perhaps the moral sentiments) of any people.

The following Table shows the number of the child of the mother; that is, how many of the children born were reported as the first, second, third, &c., of their respective mothers. The statistics on this subject begin with the year 1857, and the following Table includes the children reported in 1880 and in 1881, and also the total for twenty-five years, 1857 to 1881 inclusive:

TABLE XXV.

NUMBER OF THE CHILD OF THE MOTHER.	1880.	1881.	25 years. 1857-1881.
First.....	1,480	1,552	31,735
Second.....	1,123	1,306	26,110
Third.....	1,014	1,021	20,468
Fourth.....	770	816	15,423
Fifth.....	581	632	11,491
Sixth.....	439	464	8,330
Seventh.....	307	334	5,837
Eighth.....	211	248	3,996
Ninth.....	140	146	2,624
Tenth.....	93	99	1,711
Eleventh.....	74	51	984
Twelfth.....	26	41	602
Thirteenth.....	14	23	308
Fourteenth.....	13	6	151
Fifteenth.....	5	11	91
Sixteenth.....	5	7	49
Seventeenth.....	0	3	29
Eighteenth.....	0	1	8
Nineteenth.....	0	0	5
Twentieth.....	0	0	3
Twenty-first.....	0	0	3
Twenty-second.....	0	0	2
Total.....	6,295	6,761	129,960

The above total of twenty-five years, does not give the whole number of children born in Rhode Island during those years, because there are some returns of births every year, in which the number of the child of the mother is not given. But such occurrences are much less frequent than formerly, and make now a very insignificant proportion.

There having been a considerably larger number of births reported in 1881 than in the previous year, it would be expected that there was also a larger number in each of the classes of number of child of the mother in the same year, and such is the rule, but two noticeable exceptions are found; first, in the class of the eleventh child, in which there were only about two-thirds as many in 1881 as in the

preceding year; and, secondly, in the class of the fourteenth child, in which there were less than half as many as in the previous year.

The proportion of each class to the whole number will be better shown by the following Table, which gives the percentage of the children born, in each of the last seven years, who were respectively the first, second, third, &c., children of the mothers, and which will also give the average percentage of each class of births, during a period of ten years, from 1868 to 1877 inclusive:

TABLE XXVI.

NUMBER OF THE CHILD.	1881.	1880.	1879.	1878.	1877.	1876.	1875.	10 years. 1868 to 1877.
First.....	22.92	23.50	22.59	21.77	22.93	24.11	24.37	25.21
Second.....	19.31	17.84	18.80	20.26	20.98	20.63	20.80	20.65
Third....	15.10	16.11	15.87	18.90	16.22	16.04	14.93	15.49
Fourth.....	12.07	12.24	12.74	12.32	12.09	12.00	11.78	11.37
Fifth.....	9.35	9.23	9.33	8.77	9.07	8.42	8.81	8.38
First to Fifth.....	78.75	78.92	79.33	82.02	81.29	81.20	80.69	81.10
Sixth and over.....	21.25	21.08	20.67	17.98	18.71	18.80	19.31	18.90
Total.....	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

The percentages of the classes in the order of number of the child of the mother not only vary from year to year, but changes also occur in the percentages of periods of years.

For a period of ten years, previous to 1878, the average proportion of the class of first child was 25.2 per cent. of the whole number of births, or more than one quarter; while during the last four years, 1878-1881, the proportion has averaged only 22.7 per cent.

In the class of second child of the mother, the average of the same period of ten years was 20.7 per cent. of the whole number of births; while during the last four years the average has been only 19.0 per cent.

In the class of fifth child the average of the same ten years was 8.3 per cent., while during the last four years the average has been 9.2 per cent.

In all the classes above the fifth child of the mother, the average of the same ten years was 18.9 per cent., and during the last four years the average of the same classes has been 20.5 per cent.

It will be seen, then, that although the number of births has increased in all the classes, the increase of percentage has been entirely in the classes above and including that of the fourth child of the mother. This fact is significant of a disposition to an increased number of children by mothers who have already borne three or more children, and indicates, so far, a healthier moral sentiment than has hitherto prevailed.

#### PLURALITY BIRTHS.

The general facts in relation to plural births in Rhode Island during the year 1881, may be found in Table III, on the sixth page.

It will be seen there that there were sixty-three cases of twins, and one case of triplets during the year.

The number of children was 129, of which 70 were males and 59 were females.

Of these 64 cases of plural births, 27 occurred in Providence county towns; 23 in Providence city; 5 in Washington county; 4 in Kent county; 3 in Newport county; and 2 in Bristol county.

The parentage of the children of plurality birth in 1881 was as follows: Of the 64 cases, 26 were of purely American parentage; 12 of Irish; 9 of French; 1 each of English, Scotch and German; and 14 of mixed parentage.

Of the 14 cases of mixed parentage, 2 were of American fathers, 4 of Irish fathers, 7 of English fathers, and 1 of German father.

Of the mothers of the mixed parentage of plural births, 8 were American; 3 were Irish; and there was one each of English, Scotch and Swedish nationality.

In relation to season, the numbers in the different months were as follows:

January..... 7	April..... 6	July.... . 9	October..... 6
February..... 5	May..... 3	August..... 5	November..... 7
March..... 3	June... . . 4	September..... 4	December..... 5
First quarter.....15	Second quarter.....13	Third quarter .. 18	Fourth quarter.....18
Total.....64			

The general statistics of births reported in Rhode Island during a period of twenty-eight years, that is, from 1854 to 1881 inclusive, are as follows:

138,236 cases of single births.....	giving 138,236 children.
1,479 cases of twin births... ..	giving 2,958 children.
19 cases of triple births.....	giving 57 children.
139,734 cases of child-birth.....	giving 141,251 children.

Of the whole number of cases of child-birth (139,734) during the twenty-eight years, one in 91.8 produced twins, and one in 7,355 produced triplets.

Of the whole number of children born during the same period (141,251), ascertained from the reports, one in every 48 was a twin, and one in every 2,478 was a triplet.

Of the 1,498 cases of plurality births which have occurred in the State during the last twenty-eight years, there were 645 cases in which both parents were Americans; 712 cases in which both parents were foreign; 133 cases in which the parentage was mixed, that is, one American and one foreign parent; and 8 in which the parentage was not stated.

The whole number of children born in plurality cases during the twenty-eight years was 3,015, of whom 1,523 were males, and 1,488 were females; the sex of the remaining four was not given.

#### STILL-BORN CHILDREN.

The statistics in relation to still-born children, as stated in previous reports, are obtained from the returns of deaths, but are not numbered with, or in any way included in the statistics of deaths of this or previous reports.

For the reason that they occupy a somewhat anomalous position in the statistics of life and death, they are given a separate consideration.

The whole number of still-born children reported in Rhode Island for the year 1881 was 264; this number is 48 more than for the year 1879, and 72 more than for 1880.

The following are the numbers reported from the different divisions of the State:

Bristol County. ....	10	Providence County, Towns.....	62
Kent County. ....	11	Providence City.....	161
Newport County, Towns.....	3	Washington County.....	6
Newport City.....	11	Whole State ...	264

The following are the towns, and the number of still-born reported from each in 1881, viz:

Providence City.....	161
Woonsocket.....	31
Newport City.....	11
Bristol and Coventry, } each 9.....	18
Pawtucket.....	8
Lincoln.....	7
Cumberland.....	6
Westerly.....	4
Warwick, Cranston, New Shoreham, North Smithfield and Scituate, } each 2.....	10
Barrington, } Middletown, Glocester, Burrillville, East Providence, Scituate, Hopkinton, Richmond, } each 1.....	8
Total.....	264

There were fourteen towns from which no report of still-born children was received.

*Sex.*—Of the 264 still-born children, 169 were males and 95 were females.

*Parentage.*—Of the 264 births of this class, the parentage was divided as follows:

American parents.....	120
Foreign parents.....	144
Whole number.....	264

*Color.*—The divisions of the still-born children in respect to color were as follows:

White.....	246	Black.....	18
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The number of colored still-born children was 6 larger than in 1879 and in 1878.

Of the white still-born children there were 66 more than in 1880, and 42 more than in 1879.

*Season.*—The number of still-born children reported in each of the several months of 1881 was as follows:

January.....	20	May .....	24	September.....	20
February.....	29	June.....	19	October.....	21
March.....	18	July .....	20	November ..	25
April.....	24	August.....	20	December.....	24
Total.....					264

#### SUMMARY OF STILL-BORN.

The following table shows the number and sex of the still-born children whose births were reported in Rhode Island during each of the last five years, and a period extending from June 1, 1852, to December 31, 1880, and also total of whole number:

TABLE XXVII.

SEX.	1881.	1880.	1879.	1878.	1877.	June 1, 1852, to Dec. 31, 1880.	Total.
Males.....	169	123	124	149	147	3,090	3,259
Females.....	95	69	92	99	95	2,051	2,146
Sex not stated.....						52	52
Total.....	264	192	216	248	242	5,193	5,457

It will be seen that the whole number of still-births reported in the State since June 1, 1852, is 5,457. Of the sex of this number, there were 3,259 males, 2,146 females, and of 52 the sex was not given. The ratio of occurrence, in regard to sex, would therefore be as follows: In each 100 children there were 60 males, and 40 females; or for every 100 females there were 150 males.

It will be seen that the proportion for the year 1881 varies somewhat from the average of a period of more than twenty-nine years. The proportion standing at about 178 males to each 100 females; or 64 males and 36 females in each 100.

*Season of Still-births.*—The following summary will show the number of still-births that have been reported in Rhode Island during a period of twenty-nine years, from 1853 to 1881 inclusive, with the months and quarters in which they occurred:

## STILL-BORN—TWENTY-NINE YEARS, 1853-1881. SEASON.

January.. .. . 489	April..... . . 418	July. .... . 467	October..... 419
February..... 462	May. .... . 426	August..... 479	November..... 463
March. .... . 430	June..... . 405	September..... 453	December..... 515
1st Quarter.....1,381	2d Quarter .....1,249	3d Quarter .....1,399	4th Quarter.....1,397

First six months, 2,630; second six months, 2,796; total, 5,426.

During a period of twenty-nine years, it will be seen by the above summary that the smallest number of still-births occurring in any month in the year was in June, and the largest number in December.

Taking the quarterly periods, it will be seen that the occurrence of still-births, in the order of from the smallest to the largest number, has been as follows: 1st, Second quarter; 2d, First quarter; 3d, Fourth quarter; 4th, Third quarter. In accordance with the general birth rate, the last half of the year has considerably the largest proportion.

The proportions in 1881 differ somewhat from the long period of years. The following summary will show the percentages of the still-births occurring in Rhode Island, in the different quarters of the year, during a period of twenty-nine years, from 1853 to 1881 inclusive, and during the year 1881:

	1st Quarter.	2d Quarter.	3d Quarter.	4th Quarter.
29 years, 1853-1881.....	25.5.....	23.1.....	25.7.....	25.7.....
One year, 1881.....	25.3.....	25.3.....	22.7.....	27.7.....

## PARENTAGE OF THE STILL-BORN.

The parentage of the still-born was not made a matter of record, for incorporation in the annual registration reports, previous to the year 1859.

During the thirteen years from 1859 to 1871 inclusive, the whole number of still-births reported was 2,263, of which the parentage was as follows: American, 927; foreign, 1,334; unknown, 2.

The proportions were, therefore, 41.0 American and 59.0 foreign in each 100.

To show the changes that have occurred from year to year in the percentages of parentage of the still-born, reckoning by the parentage of the mother, in contrast with the percentages of the same nativities to the whole number of births, reckoned by the parentage of the father, the following resumé, for various years and periods of years, is presented:

Years.	Of Whole No. Births.	Of Whole No. still-born.
	American. Foreign.	American. Foreign.
1871...	49.36 and 50.64 in each 100.....	41.00 and 59.00 in each 100.
1872...	47.59 and 52.41 in each 100.....	41.25 and 58.75 in each 100.
1873.....	50.30 and 49.70 in each 100.....	59.21 and 40.79 in each 100.
1874.....	47.14 and 52.86 in each 100.....	50.00 and 50.00 in each 100.
1875 ...	47.88 and 52.12 in each 100 .....	49.19 and 50.81 in each 100.
1876.....	46.43 and 53.57 in each 100.....	45.76 and 54.24 in each 100.
1877 .....	49.41 and 51.59 in each 100.....	53.31 and 46.69 in each 100.
1878.....	49.35 and 50.65 in each 100....	55.65 and 44.35 in each 100.
1879.....	50.53 and 49.47 in each 100.....	54.63 and 45.37 in each 100.
1880.....	50.17 and 49.83 in each 100 ...	54.16 and 45.84 in each 100.
1881.....	49.60 and 50.40 in each 100..	48.10 and 51.90 in each 100.
14 years.		
1859-1872.....	50.54 and 49.46 in each 100.....	41.25 and 58.75 in each 100.
7 years.		
1873-1881.....	49.1 and 50.9 in each 100.....	51.84 and 48.16 in each 100.

## MARRIAGES, 1881.

The number of marriages reported in Rhode Island during the year 1881 was 2,750. This number is 19 less than in 1880, and 354 more than in 1879.

The general statistics of marriages in 1881, in relation to season and number in the different divisions of the State, may be found in Table IV, on the seventh page.

### SEASON.

The following Table will show the number and percentage of marriages in Rhode Island, in each quarter of the year 1881; together with the aggregate number and percentage in each quarter for twenty-eight years, viz., from 1854 to 1881 inclusive.

TABLE XXVIII.

YEARS.		First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	Whole Year.
1881.....	} Number. ....	671	756	549	774	2,750
	} Percentage.....	24.40	27.50	20.00	28.10	100.00
28 Years.    }	} Number. ....	12,900	14,297	13,483	16,923	57,603
		22.41	24.82	23.41	29.36	100.00
1854-1881....	} Percentage.....					

It will be noticed in the above Table, that the proportion of marriages in the different quarters of the year have very considerable variation.

During the period of twenty-eight years, the percentage of the aggregate of the last quarter of each year was the largest in the series, and the percentage of the first quarter the smallest. The order of proportion in the different quarters from the least to the largest, was as follows: first, third, second, fourth.

In 1881 the order of proportion differed considerably from the rule of the long period, the smallest number of marriages having been solemnized in the third quarter, and the next largest number in the first quarter, followed by second and fourth.

## NATIVITY OF PERSONS MARRIED.

The following Table shows the number of marriages, according to the nativity of the parties, for each of the last eight years, and also for the aggregate of twenty years, from 1858 to 1877 inclusive:

TABLE XXIX.

BIRTH-PLACE.	1881.	1880.	1879.	1878.	1877.	1876.	20 years. 1858-77. Total.
United States.....	1,638	1,775	1,511	1,455	1,407	1,402	25,674
Foreign countries .....	623	548	467	493	496	513	10,963
American groom, foreign bride.....	244	202	209	181	177	144	2,410
Foreign groom, American bride....	245	244	209	195	202	194	2,750
Not stated.....							64
Total.....	2,750	2,769	2,396	2,324	2,282	2,253	41,861

There were 19 less marriages in 1881 than there were in 1880, and this deficiency was not only entirely of purely American nativity, but the number of that nativity was 137 less than in the previous year. In every other class there was an increased number, that of foreign groom and American bride, however, was very slight.

It will scarcely fail to be noticed how gradually the mixed marriages have increased from year to year since 1876.

It will also be noticed, that in the class of foreign born, the number is larger by a proportion of from one-eighth to one-seventh than in 1880. The number of immigrants of marriageable age from Germany, Sweden and other European countries, and from the Canadian Provinces, has been unusually large during the last two or three years, and that has enlarged the number of foreign born, and therefore contributed more largely to the whole number of marriages.

In the following Table are given the percentages of American, foreign and mixed marriages in each of the last six years, and in the aggregate for the twenty years, 1858 to 1877 inclusive. By *mixed* marriages are meant those where one party was of American and the other of foreign birth:

TABLE XXX.

BIRTH-PLACE.	1881.	1880.	1879.	1878.	1877.	1876.	20 years. Total.
United States.....	59.56	64.10	63.06	62.60	61.66	62.23	61.33
Foreign countries.....	22.65	19.79	19.49	21.22	21.73	22.77	26.19
Mixed.....	17.79	16.11	17.45	16.18	16.61	15.00	12.48
Total.....	100.00	100.00	100.00	100.00	100.00	100.00	100.00

It will be seen that the percentage of marriages of persons of American birth, was smaller than in any one of the previous five years, and also smaller than the average of a period of twenty years prior to 1878.

The increase of percentage in the classes of foreign and mixed, will also be noticed.

## AGES OF PERSONS MARRIED.

The number of persons married in Rhode Island during the year 1881, in the different periods of life, is shown in Table V on page 8. The number of each sex, in each division of age, can also be found in the following Table:

TABLE XXXI.

1881.	Under 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.	50 to 55.	55 to 60.	60 to 65.	65 to 70.	70 to 75.	75 to 80.	80 to 85.	85 to 90.	Not stated.
Males.....	78	1,024	818	344	192	116	72	37	22	26	13	5	1	1	....	1
Females.....	521	1,184	592	203	106	71	35	17	12	5	3	....	....	....	....	1
Total.....	599	2,208	1,410	547	298	187	107	54	34	31	16	5	1	1	....	2

There has been some change during the last five years in the proportion of those of both sexes who were married under twenty years of age, and of those females who were married for the first time when over twenty-five years of age.

The proportions of both sexes, married under twenty, have decreased very considerably, and of females between twenty-five and thirty-five the proportions have increased.

Some curious anomalies occurred in 1881, as in other years, in regard to the ages of the bride and groom respectively. Six grooms between forty and forty-five, two between forty-five and fifty, and one between fifty and fifty-five years of age, married brides under twenty years of age. One groom between eighty and eighty-five, married a bride between forty and forty-five.

The greater departures from the ordinary rule are, however, when the groom takes a bride many years older than himself. During 1881 there was one bride, between thirty-five and forty, that took for a husband a blushing youth under twenty; one bride, between forty-five and fifty, took a husband between twenty and twenty-five, and one, between sixty and sixty-five, accepted a husband between twenty-five and thirty.

The whole number of persons, in each division of ages of both sexes, married in Rhode Island in each of the last sixteen years, that is, from 1866 to 1881 inclusive, is presented in the following Table:

TABLE XXXII.

YEARS.	Under 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.	50 to 55.	55 to 60.	60 to 65.	65 to 70.	70 to 75.	75 to 80.	80 to 85.	85 to 90.	Not stated.
1866.....	693	1,931	1,025	419	213	127	81	59	25	21	12	7	...	...	...	23
1867.....	696	1,886	1,104	416	211	148	91	48	37	18	18	5	3	1	..	6
1868....	644	1,835	1,050	432	219	133	82	61	30	29	11	8	4	...	...	32
1869.....	642	1,814	1,051	468	227	134	79	46	35	15	11	2	3	2	....	49
1870.....	744	1,883	1,084	415	216	159	86	64	26	24	12	3	2	..	....	6
1871....	697	1,914	1,118	392	228	115	73	56	35	22	6	7	3	...	....	6
1872.....	786	2,073	1,182	434	237	131	81	61	43	21	13	6	1	....	....	5
1873.....	762	2,177	1,156	507	253	140	87	68	35	24	12	6	6	...	...	27
1874....	770	1,992	1,179	459	268	159	101	52	36	39	8	9	1	....	....	9
1875.....	681	2,058	1,108	475	252	150	101	60	32	29	13	4	1	....	....	6
1876.....	671	1,741	1,041	450	224	154	80	53	27	19	12	3	2	....	....	9
1877.....	631	1,745	1,118	459	244	125	92	52	46	14	15	11	2	1	....	9
1878.....	618	1,832	1,123	441	259	162	74	49	39	20	17	2	4	...	....	8
1879.....	639	1,879	1,156	481	272	123	78	56	39	26	18	9	2	2	1	11
1880.....	688	2,301	1,262	556	320	163	91	65	33	27	15	3	3	1	....	1
1881.....	599	2,208	1,410	547	298	187	107	54	34	31	16	5	1	1	....	2

Although the whole number of marriages, in 1881, was slightly smaller than in the previous year, the number of both sexes married in 1881 under twenty years of age was not only smaller, but, in pro-

portion to whole number, was very much smaller than in the previous year, or in any year during the whole period of registration.

The following summary of percentages of persons of both sexes, married under twenty years of age, in different later years taken at random, will show the decline in the proportions of the same:

Years.	Married under 20 years of age.
1870.....	15.9 per cent. of whole number.
1872.....	15.5 per cent. of whole number.
1876.....	15.3 per cent. of whole number.
1880.....	12.4 per cent. of whole number.
1881.....	10.9 per cent. of whole number.

The relative proportions of the sexes married at different ages will be found below.

#### PROPORTION OF SEX.

The following Table will show the percentages of males married, in each division of ages, in each of the last twenty-two years:

TABLE XXXIII.

YEARS.		Under 20.	20 to 25.	25 to 30.	30 to 40.	40 to 50.	50 & over.	Total.
MALES.	1860.....	5.0	42.8	26.9	16.3	5.7	3.3	100.00
	1861.....	4.6	44.5	25.4	15.5	5.8	4.2	100.00
	1862.....	4.2	37.8	27.9	18.3	5.9	5.9	100.00
	1863.....	3.5	38.0	29.6	17.2	5.8	5.9	100.00
	1864.....	4.3	38.8	27.3	17.9	7.4	4.3	100.00
	1865.....	3.5	37.0	28.4	18.9	7.5	4.7	100.00
	1866.....	5.3	40.9	27.0	16.4	6.3	4.1	100.00
	1867.....	4.3	40.1	27.9	16.8	6.8	4.1	100.00
	1868.....	4.1	39.9	28.2	17.1	6.1	4.6	100.00
	1869.....	4.3	39.6	27.7	18.5	6.1	3.8	100.00
	1870.....	4.8	40.4	28.1	16.0	6.4	4.3	100.00
	1871.....	5.3	40.1	28.9	16.5	4.9	4.3	100.00
	1872.....	4.3	41.3	28.2	16.6	5.2	4.4	100.00
	1873.....	3.8	42.4	26.7	17.0	6.0	4.1	100.00
	1874.....	4.1	40.4	27.2	17.5	6.4	4.4	100.00
	1875.....	3.5	40.9	27.8	17.5	6.1	4.2	100.00
	1876.....	5.1	37.5	28.6	17.9	5.6	4.3	100.00
	1877.....	4.3	36.0	30.2	18.7	5.9	4.9	100.00
	1878.....	3.9	38.5	29.0	18.0	6.3	4.3	100.00
	1879.....	3.9	37.8	28.8	19.3	5.4	4.8	100.00
	1880.....	3.6	38.9	27.5	19.9	5.8	4.3	100.00
	1881.....	2.8	37.2	29.7	19.5	6.8	4.0	100.00

The following Table will show the percentages of females married, in each division of ages, in each of the last twenty-two years:

TABLE XXXIV.

YEARS.							Total.
	Under 20.	20 to 25.	25 to 30.	30 to 40.	40 to 50.	50 & over.	
1860.....	25.8	44.1	17.0	9.1	2.6	1.4	100.00
1861.....	29.6	42.0	15.2	7.8	4.1	1.3	100.00
1862.....	24.9	41.3	16.7	11.8	4.1	1.2	100.00
1863.....	24.9	42.6	16.9	9.8	4.1	1.7	100.00
1864.....	24.2	43.4	17.8	10.3	2.9	1.4	100.00
1865.....	22.6	42.3	19.1	11.0	3.5	1.5	100.00
1866.....	24.7	42.9	17.4	11.0	2.7	1.3	100.00
1867.....	25.4	40.5	19.3	10.0	3.4	1.4	100.00
1868.....	24.4	40.9	18.1	11.6	3.3	1.7	100.00
1869.....	24.1	40.5	18.7	12.1	3.4	1.2	100.00
1870.....	26.8	39.4	17.9	10.8	3.9	1.2	100.00
1871.....	24.6	41.9	19.1	10.1	3.1	1.2	100.00
1872.....	26.7	40.5	18.4	9.9	3.2	1.3	100.00
1873.....	25.3	40.8	17.5	12.0	2.7	1.7	100.00
1874.....	26.3	38.1	19.3	11.1	3.9	1.3	100.00
1875.....	23.9	42.1	16.8	11.8	4.0	1.4	100.00
1876.....	25.6	39.8	17.6	12.0	3.7	1.3	100.00
1877.....	23.4	40.4	18.8	12.1	3.6	1.7	100.00
1878.....	22.7	40.4	19.3	12.2	3.8	1.6	100.00
1879.....	22.8	40.7	19.4	12.1	3.0	2.0	100.00
1880.....	21.1	44.2	18.0	12.0	3.3	1.4	100.00
1881.....	19.0	43.0	21.5	11.2	3.8	1.5	100.00

The above Tables are instructive, in that they show the changes that have taken place in the percentages of the sexes, married in the different divisions of age, during the last twenty-two years.

In Table XXXIII it will be seen that the proportion of males married, under 20 years of age, has gradually lessened, with only temporary interruptions, from 5.0 per cent. of the whole number of males married in 1860 to 2.8 per cent. of the same class married in 1881, or a proportion of but little more than half as many.

The proportion of males, between twenty and twenty-five, has also decreased, but to a considerably less extent.

The proportion of males, married in every division of age above twenty-five, has gradually increased through the same series of years,

with only temporary interruptions, standing in 1881 at 60 per cent. of the whole number, as against 52.0 per cent. in 1860.

In Table XXXIV it will also be seen that the proportion of females married under twenty years of age has been, with few exceptions, gradually lessening during the period of twenty-two years. From a proportion of 25.8 per cent. of the whole number of females married in 1860, the proportion married under twenty was reduced to 19.0 per cent. in 1881.

In the class of females married between twenty and twenty-five years of age, the proportions have not changed very much from year to year, and the percentage to whole number of females married in 1881, that is, 43.0 per cent., varies only about one per cent. from that of 1860.

In all the periods of life above twenty years of age there has been a gradual increase, subject to slight fluctuations, of the proportions of females assuming the marriage relation, and shows the general tendency, as in the case of males, and as compared with former years, of postponing marriage responsibilities to more advanced stages of life.

It is quite probable that the recently amended marriage law of the State, requiring the consent in writing of the parent or guardian to the marriage of any person under twenty-one years of age, has operated to reduce in some measure the proportions of both males and females married during 1881.

#### COLORED MARRIAGES.

There were 168 persons of color married in Rhode Island during the year 1881, or 84 marriages of that class, according to the returns. The number of marriages is 8 more than in 1880, and 23 more than in 1879. It is the largest ever recorded in the State in any year, with the exception of the year 1868, when the number was the same.

They were reported in 1881 from the following towns, viz.:

Providence.....	61
Newport.....	10
Warren,	} 2 each..... 6
Pawtucket,	
Hopkinton.	
Bristol,	} 1 each..... 7
Portsmouth,	
East Providence,	
Smithfield,	
North Kingstown,	
South Kingstown,	
Westerly.	
Total.....	84

The following summary will show what the proportion of colored persons married during each of the six years from 1876 to 1881 inclusive, bears to the whole number of colored persons in the State; and also the proportion which the whole number of persons married in each of the same years, bears to the whole population of the State:

	1881.	1880.	1879.	1878.	1877.	1876.
Ratio of colored persons married to whole of colored population of the State.	One in every	One in every	One in every	One in every	One in every	One in every
.....	39.2	43.3	51.4	39.1	49.0	53.1
Ratio of whole number of persons married to whole population of the State.						
.....	50.3	50.0	57.8	55.7	56.6	57.3

The above is on the basis of the National Census of 1880.

It will be perceived that marriages of the colored race have uniformly been of larger proportions than of the white, and that the fluctuations of the proportion from year to year have also been greater in the colored race.

## DIVORCES, 1881.

The number of applications for divorce in Rhode Island, during the year 1881, as ascertained by reports from the clerks of the supreme courts of the different counties, was (350) three hundred and fifty. The number in 1880 was (347) three hundred and forty-seven; and in 1879 it was (255) two hundred and fifty-five.

During the year 1881 there were (268) two hundred and sixty-eight applications for divorce granted, which were five less than in 1880, and twenty-two more than in 1879.

The following Table shows the number of applications for divorce, and the number granted, in 1881, in each county of the State; also the causes alleged for the applications.

TABLE XXXV.

COUNTIES.	Number of Applications.	Number Granted.	CAUSES ALLEGED.							Total Causes Alleged.
			Adultery.	Extreme Cruelty.	Wilful Desertion.	Continued Drunkenness.	Neglect to Provide Necessaries, &c.	Other Gross Misbehavior.	Impotency.	
Bristol.....	7	6	1	1	5	1	3	3	.....	14
Kent.....	27	26	9	.....	5	1	11	.....	.....	26
Newport..	10	10	2	3	4	3	6	.....	.....	18
Providence.....	283	207	54	39	144	47	159	22	.....	465
Washington.....	23	19	5	6	15	4	11	19	.....	60
Whole State..	350	268	71	49	173	56	190	44	.....	583

In the two hundred and sixty-eight applications for divorce which were granted in 1881, the whole number of causes alleged for the same was five hundred and eighty-three.

It will be seen that more than one cause is alleged why divorce should be granted, in a majority of cases, and in some applications several reasons are specified.

In the 583 causes alleged it will be noticed that only 71 alleged "adultery" as a reason; while there were 190 in which "neglect to provide the necessaries of life" were given; 173, "willful desertion;" 56, "Continued drunkenness;" 49, "extreme cruelty;" and 44 others, "gross misbehavior" were specified.

The causes alleged cannot, however, be accepted as the true causes in all cases. Misrepresentation is made, not unfrequently, and in some cases there has seemed to be collusion between the parties.

There are in every year petitions for divorce which are not heard by the court in that year, and so are heard, granted or refused in the ensuing year.

In order to show the actual number of applications, and the number of divorces granted in each of the last nine years, the following summary is presented:

	Applications for Divorce.	Divorces Granted.	Applications refused or continued or withdrawn.
1873 .....	261 .....	173 .....	88
1874 .....	276 .....	242 .....	34
1875 .....	227 .....	158 .....	69
1876 .....	254 .....	196 .....	58
1877 .....	257 .....	178 .....	79
1878 .....	258 .....	196 .....	62
1879 .....	255 .....	246 .....	9
1880 .....	347 .....	273 .....	74
1881 .....	350 .....	268 .....	92
9 years total .....	2,485 .....	1,930 .....	565

The proportion of divorces granted, to whole number of applications during the last nine years, is 77.6 in each 100.

The number of applications for divorce, in Rhode Island, increase from year to year with only slight fluctuations. The number in 1881 was the largest ever reported.

The proportion of petitions for divorce granted in 1881 was 76.5 per cent. of the applications made during the same year. This proportion is 2.1 per cent. smaller than that of 1880.

The ratio of *divorces granted* in 1881, to whole number of marriages during the year, was one *divorce* to every 10.4 marriages.

The ratio of *applications* for divorce to the whole number of marriages during the year, was one *application* to less than every eight marriages.

The following Table shows the number of divorces granted in each county, and in the whole State, in each of the last thirteen years, with the proportion of marriages to each divorce granted in each year:

TABLE XXXVI.

YEARS.	Bristol County.		Kent County.		Newport County.		Providence County.		Washington County.		Whole State.	
	Divorces Granted.	Marriages to one Divorce.	Divorces Granted.	Marriages to one Divorce.	Divorces Granted.	Marriages to one Divorce.	Divorces Granted.	Marriages to one Divorce.	Divorces Granted.	Marriages to one Divorce.	Divorces Granted.	Marriages to one Divorce.
1869.....	10	10.6	15	12.5	6	27.7	120	13.8	11	15.5	162	14.1
1870.....	3	27.7	18	11.8	6	26.3	152	11.3	21	9.3	200	11.8
1871.....	5	16.8	11	17.9	4	49.7	123	13.3	18	11.4	161	14.5
1872.....	8	10.2	13	15.7	8	22.9	149	12.6	22	8.9	200	12.7
1873.....	6	16.2	22	9.8	8	21.9	131	14.8	6	33.7	173	15.2
1874.....	10	8.9	20	8.0	6	29.0	190	10.0	16	11.6	242	10.5
1875.....	2	50.0	18	8.8	7	23.4	120	14.9	11	20.5	158	15.7
1876.....	6	14.5	15	12.8	7	20.5	148	11.1	20	8.8	190	11.5
1877.....	7	12.0	9	16.3	7	26.0	134	12.4	21	9.9	178	12.8
1878.....	4	26.0	11	13.3	13	12.8	156	10.9	12	17.3	196	11.9
1879.....	5	18.8	19	9.0	7	24.1	195	9.1	20	9.7	246	9.7
1880.....	8	12.1	23	9.4	11	17.6	208	9.7	23	17.0	273	10.1
1881.....	6	20.1	26	7.3	10	16.9	207	10.0	19	11.0	268	10.4

It will be seen, by the above Table, that the proportion of divorces granted in the whole State, in 1881, to the number of marriages the same year, was slightly less than in the previous year.

The large proportion in Kent county, only 7.3 marriages to one divorce, is unprecedented in the whole period of registration.

This county has reported the largest proportion of any, for the last three years.

Bristol county shows the smallest ratio of divorces granted in 1881, to the number of marriages, that is, one divorce to about 20 marriages. In 1880 the proportion was one divorce to 12 marriages. In the year 1875 there were only 2 divorces, as against 100 marriages. Newport county in 1871 had only 4 divorces, as against 199 marriages.

Newport county has had the least fluctuation from year to year, in the ratio of divorce to marriage, of any county in the State.

In the whole State the tendency, during the last thirteen years, has been to an increase of the proportion of divorce to marriage.

During the three years from 1869 to 1871 inclusive, the proportion was one divorce to every 13.5 marriages. From 1872 to 1876 inclusive it was one divorce to every 13.1 marriages; and from 1877 to 1881 inclusive it was one divorce to every 11 marriages.

Divorce returns were not included in the Registration Reports previous to 1869.

## DEATHS, 1881.

There were returns of five thousand and sixteen (5,016) deaths in Rhode Island, in 1881, reported to the State Registrar. It is the largest number that has ever occurred or been reported in the State, being 187 larger than in 1880, and 544 larger than in 1879.

This increased number is not owing to a very much larger prevalence of fatal sickness, during 1881, or entirely to the increased population; the fact of a more complete collection of the returns having an important relation to the results.

This fact, which seems indisputable, will account in part for the increased proportion of deaths to population, which, as previously shown in Tables VII and XIV, was 18.1 decedents in each thousand persons in 1881, as against 17.5 decedents in each thousand in 1880. It will be understood that the percentage in both years is based on the population as ascertained by the National Census of 1880, and therefore the percentage of 1881 is actually larger than the population in 1881 would warrant. It is indeed quite probable that if the actual population in 1881 was known, it would be found that the percentage of mortality in 1881 was really less than in 1880.

The death rate varies considerably in the different towns in the State, during the same year, as well as in different years. The larger the population, however, the less will be the variation from year to year. Various diseases, not contagious or ordinarily epidemic, may occur more largely in one year than in another, and therefore increase the percentage of deaths in that year. And when a sweeping epidemic of a fatal character occurs, then, of course, the death rate would be enlarged.

To illustrate the above remarks the following summary is presented, showing the death rate of several towns, taken at random, and the cities of Providence and Newport, in each of the last four years:

		1878.	1879.	1880.	1881.
		In each	In each	In each	In each
	*Population.	1000.	1000.	1000.	1000.
Westerly.....	6,104.....	8.0 .....	10.5.....	12.6.....	6.9 .....
West Greenwich.....	1,018.....	15.8 .....	21.6.....	22.6.....	14.7 .....
Burrillville.....	5,714.....	11.6.....	13.3.....	18.4.....	13.8 .....
Woonsocket.....	16,050.....	18.0.....	17.1.....	19.8.....	19.6 .....
Pawtucket.....	19,080.....	17.5.....	16.7.....	18.4.....	17.9 .....
Warren.....	4,007.....	20.9.....	13.9.....	19.2.....	19.2 .....
Providence City.....	104,857.....	18.9.....	19.3.....	19.8.....	20.5 .....
Newport City.....	15,693.....	14.2.....	16.8.....	15.4.....	16.1 .....

\* By the Census of 1880.

It will be seen that the fluctuations of proportion have been much greater in the small populations than in the larger.

Providence city contains about 38 per cent. of the population of the State. Having nearly all the characteristics of the largest cities, it has been the custom in previous reports to contrast the death rate in that city with the death rate in the rest of the State.

The following synopsis will show the population, number of deaths, and proportion of the decedents to the population, in Providence city and in the rest of the State, in each of the three years 1879, 1880 and 1881:

	Population.	Number of Deaths.	One Death in every	In each 1000.	
1879.	{ Providence City.....	104,857 .....	2,026.....	51.76 .....	19.32
	{ Rest of State.....	171,674 .....	2,416.....	70.25.....	14.02
1880.	{ Providence City .....	104,857 .....	2,080.....	50.41.....	19.83
	{ Rest of State.....	171,674.....	2,749.....	62.45.....	16.00
1881.	{ Providence City.....	104,857 .....	2,145.....	48.88.....	20.50
	{ Rest of State.....	171,674.....	2,871.....	60.00 .....	16.70

The above proportions, based on the Census of 1880, are larger than the true proportions, because of the increase of population. But the actual population being unknown, compels the use of the official enumeration last made.

#### SEX OF DECEDENTS.

Of the 5,016 persons whose deaths were returned, during the year 1881, 2,467 were males, and 2,549 were females; the ratio standing at 96.78 males to each 100 females, or 49.18 males and 50.82 females in each 100 decedents.

The following Tables, XXXVII and XXXVIII, show the number and proportion of males and females among the decedents, and also among the children born in Rhode Island during the ten years 1853 to 1862 inclusive; also in each of the nineteen years from 1863 to 1881 inclusive, and for the entire period of twenty-nine years:

TABLE XXXVII.

DEATHS.	10 years, 1853-1862.....	10,930 males.....	11,269 females.....	or 96.9 males to 100 females.
	1863.....	1,621 males.....	1,586 females.....	or 102.2 males to 100 females.
	1864.....	1,633 males.....	1,727 females.....	or 94.5 males to 100 females.
	1865.....	1,686 males.....	1,719 females.....	or 98.1 males to 100 females.
	1866.....	1,497 males.....	1,473 females.....	or 101.6 males to 100 females.
	1867.....	1,442 males.....	1,447 females.....	or 99.7 males to 100 females.
	1868.....	1,413 males.....	1,499 females.....	or 94.3 males to 100 females.
	1869.....	1,696 males.....	1,686 females.....	or 100.6 males to 100 females.
	1870.....	1,588 males.....	1,650 females.....	or 96.2 males to 100 females.
	1871.....	1,621 males.....	1,723 females.....	or 94.1 males to 100 females.
	1872.....	2,118 males.....	2,129 females.....	or 99.4 males to 100 females.
	1873.....	2,166 males.....	2,237 females.....	or 95.5 males to 100 females.
	1874.....	2,111 males.....	2,118 females.....	or 99.7 males to 100 females.
	1875.....	2,108 males.....	2,209 females.....	or 95.4 males to 100 females.
	1876.....	1,969 males.....	2,147 females.....	or 91.7 males to 100 females.
	1877.....	2,132 males.....	2,318 females.....	or 92.0 males to 100 females.
	1878.....	2,161 males.....	2,280 females.....	or 94.8 males to 100 females.
	1879.....	2,183 males.....	2,289 females.....	or 95.4 males to 100 females.
	1880.....	2,366 males.....	2,463 females.....	or 96.0 males to 100 females.
	1881.....	2,467 males.....	2,549 females.....	or 96.8 males to 100 females.
<hr/>				
29 years.....				
46,908 males.....48,518 females.....or 96.7 males to 100 females.				

TABLE XXXVIII.

BIRTHS.	10 years, 1853-1862.....	18,377 males.....	17,260 females.....	or 106.4 males to 100 females.
	1863.....	1,892 males.....	1,788 females.....	or 105.8 males to 100 females.
	1864.....	1,949 males.....	1,942 females.....	or 100.3 males to 100 females.
	1865.....	2,096 males.....	1,857 females.....	or 112.9 males to 100 females.
	1866.....	2,546 males.....	2,356 females.....	or 108.1 males to 100 females.
	1867.....	2,655 males.....	2,464 females.....	or 107.7 males to 100 females.
	1868.....	2,745 males.....	2,627 females.....	or 104.5 males to 100 females.
	1869.....	2,685 males.....	2,560 females.....	or 104.9 males to 100 females.
	1870.....	2,679 males.....	2,536 females.....	or 105.6 males to 100 females.
	1871.....	2,878 males.....	2,800 females.....	or 102.8 males to 100 females.
	1872.....	3,085 males.....	3,058 females.....	or 100.9 males to 100 females.
	1873.....	3,125 males.....	2,887 females.....	or 108.6 males to 100 females.
	1874.....	3,311 males.....	3,155 females.....	or 104.9 males to 100 females.
	1875.....	3,362 males.....	3,146 females.....	or 106.9 males to 100 females.
	1876.....	3,291 males.....	3,038 females.....	or 108.3 males to 100 females.
	1877.....	3,163 males.....	3,072 females.....	or 103.0 males to 100 females.
	1878.....	3,402 males.....	3,312 females.....	or 102.7 males to 100 females.
	1879.....	3,259 males.....	3,091 females.....	or 105.4 males to 100 females.
	1880.....	3,241 males.....	3,054 females.....	or 106.1 males to 100 females.
	1881.....	3,498 males.....	3,263 females.....	or 107.2 males to 100 females.
<hr/>				
29 years.....				
73,249 males.....69,266 females.....or 105.7 males to 100 females.				

Table XXXVII shows that, in nearly every year, the number of female decedents exceeds that of male decedents, and, on the other hand, Table XXXVIII shows that the number of female children born is less, every year, than the number of male children born.

If the population of the State was confined exclusively to those who were born and remained within the State, it is obvious that such dissimilar relations of the events of birth and death could not long continue without largely increasing the male population.

That such is not the case is shown by the National Census of 1880, by which the enumeration of the sexes was as follows:

Males.....133,030      Females .. ..... 143,501

The circumstances are accounted for on the ground of the movements of population.

#### SEASON AND MORTALITY.

The whole number of decedents, and the sex of the same, in each month of the year 1881, and in each division of the State, may be found in Table VI, on the seventeenth page.

The influence of season upon mortality may be further illustrated by the following Table, which shows the number and percentage of deaths in each quarter of each of the last five years, and in the aggregate for the twenty-five years from 1853 to 1877 inclusive:

TABLE XXXIX.

SEASON.	1881.		1880.		1879.		1878.		1877.		1853-1877.	
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
January-March....	1,236	24.62	1,216	25.18	1,185	26.49	1,158	25.87	996	21.03	17,646	22.16
April-June.....	1,171	23.34	1,149	23.80	939	20.99	968	21.81	958	21.53	16,513	20.74
July-September...	1,124	28.38	1,306	27.01	1,174	26.26	1,175	26.46	1,317	29.60	23,464	29.46
October-December	1,185	23.66	1,158	23.98	1,174	26.26	1,140	25.86	1,239	27.84	22,006	27.64
Total.....	5,016	100.00	4,829	100.00	4,472	100.00	4,441	100.00	4,450	100.00	79,629	100.00

It will be observed in the above Table, that the percentage of mortality in the different quarters of the year, vary somewhat one year with another. Thus it will be seen, that in 1877 the proportion of

deaths in the first quarter of the year was 21.0 per cent.; in 1879 it was 26.5 per cent.; and in 1881 it was 24.6 per cent.

Comparing the proportions of the different quarters in 1881, and those of the last three or four years may also be included, with the proportions of the quarters of the period of twenty-five years, it will be found that there has been an increase in the percentages of the first and second quarters, and a decrease in those of the third and fourth quarters.

During the long period preceeding 1878, the proportion of the first half of the year, was about 43 in each hundred decedents, and about 57 in each hundred in the last half.

The average proportion of the first half of the last four years, 1878 to 1881 inclusive, has been about 48 in each hundred in the first half, and about 52 in each hundred in the last half of the year.

It would seem from these figures, that the influence of particular seasons in the production of mortality, had for some reason diminished. It is probable, however, that some particular diseases, not so much dependent on season, and more prevalent during the last four years, have contributed largely to the result.

#### SEASON AND DEATH RATE. CITY INFLUENCE.

The question of the influences of *city* life upon the status of mortality is often presented, and it has been the custom in former Reports to contrast the city of Providence, which comprises more than three-eighths of the entire population of the State, with the rest of the State, in regard to the influence of *season* upon mortality.

The following Table will present a comparison between the city and the rest of the State, in relation to the mortality of each section by seasons. It will show the number and percentage of deaths in each quarter of the year 1881 in the city, and in the rest of the State separately; and the number and percentage of deaths in each quarterly period in the city of Providence, for six years, that is from 1876 to 1881 inclusive; and the number and percentage in the rest of the State, also for each quarter of the same period of six years:

TABLE XL.

SEASON.	1881.				1876-1881.		1876-1881.	
	Providence.		Rest of State.		Providence.		Rest of State.	
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
January-March. ....	527	24.57	709	24.70	2,936	24.38	3,743	24.50
April-June.....	557	25.97	614	21.38	2,811	23.34	3,316	21.70
July-September.....	580	27.04	844	29.40	3,248	26.97	4,397	28.77
October-December. ....	481	22.42	704	24.52	3,048	25.31	3,825	25.03
Total.....	2,145	100.00	2,871	100.00	12,043	100.00	15,281	100.00

The percentage of the first quarter of the year 1881, as will be seen by the above Table, was very nearly the same in Providence city as in the rest of the State, that is, a difference of only about one-tenth of one per cent. In the second quarter of that year, the difference was quite considerable, that is, four and six-tenths per cent. In Providence the number and percentage of the second quarter of 1881 was the largest ever recorded. It will be seen by the Table, that the percentage was 2.63 per cent. larger than the average of six years.

The percentage of the third quarter of 1881, which is the largest quarter in mortality in every year with scarcely an exception, was not only larger than usual in the city of Providence, but also in the rest of the State.

The percentage of the fourth quarter in 1881 was smaller than usual in Providence city, by nearly three per cent. than the average of six years; including 1881. It was also slightly smaller in the rest of the State.

A comparison of the percentages of the different quarters, for the period of six years, will show that in the first and fourth quarters the proportion of deaths was about the same in the city as in the rest of the State.

In the second quarter the proportion in a series of years, was larger in the city than in the rest of the State, and in the third quarter it was larger in the rest of the State than it was in Providence city.

#### ORDER OF MONTHS.

Below may be found a general view of the order of the months, in which occurred from the largest to the smallest number of deaths, in the whole State, in each of the last five years:

TABLE XLI.

1881.	1880.	1879.	1878.	1877.
1. August. . . . . 576	July . . . . . 488	January . . . . . 468	December . . . . . 421	September . . . . . 454
2. January . . . . . 439	August . . . . . 430	August . . . . . 452	August . . . . . 420	August . . . . . 450
3. July . . . . . 434	March . . . . . 426	December . . . . . 395	July . . . . . 410	October . . . . . 430
4. October. . . . . 426	January . . . . . 422	October . . . . . 391	January . . . . . 400	July . . . . . 413
3. April . . . . . 417	October . . . . . 416	November . . . . . 388	March . . . . . 396	December . . . . . 411
6. September . . 414	April . . . . . 400	July . . . . . 383	November . . . . . 377	November . . . . . 398
7. May . . . . . 410	May . . . . . 392	March . . . . . 382	February . . . . . 362	March . . . . . 347
8. March . . . . . 401	September . . . 388	April . . . . . 342	April . . . . . 350	May . . . . . 343
9. February . . . 396	December . . . . 377	September . . . 339	September . . . 345	January . . . . . 323
10. December . . 385	February . . . . . 368	February . . . . . 335	October . . . . . 342	April . . . . . 310
11. November . . 374	November . . . . . 365	May . . . . . 318	June . . . . . 310	June . . . . . 305
12. June . . . . . 344	June . . . . . 357	June . . . . . 279	May . . . . . 308	February . . . . . 266
—	—	—	—	—
5,016	4,829	4,472	4,441	4,450

August, which, for a period of several years, was the first month in the order of contributing the largest number of decedents previous to 1877, and then took the second place for four years, resumed its position again at the head of the list in 1881.

It will be seen that there has been a change in the heading of the list every year during the last five years.

#### PARENTAGE OF DECEDENTS.

The whole number of decedents reported in Rhode Island in 1881 was 5,016, of which 2,482 were of American parentage, and 2,534 were of foreign parentage. The parentage was reckoned according to the reported nativity of the fathers.

The parentage of the decedents in the two classes of American and foreign, as reported from the different towns in the State, may be found in the general abstract for 1881, on the tenth and eleventh pages.

For the first time during the whole period of registration in Rhode Island, the decedents of foreign parentage exceeded, in 1881, the number of decedents of American parentage. In Table XLII this fact will be clearly shown by the statistics.

No decedents of foreign parentage were reported, in 1881, in the following towns, viz.: Jamestown, New Shoreham, Foster, North Providence, Charlestown and Exeter.

The decedents of foreign parentage were less than one-tenth of the whole number, in the following five towns, viz.: West Greenwich, Little Compton, Middletown, Hopkinton and South Kingstown.

There were nine towns in which the decedents of foreign parentage exceeded those of American parentage.

Of the nine towns there were, in Burrillville and Johnston, nearly twice as many decedents of foreign as there were of American parentage, in Cumberland and North Smithfield there were more than twice as many of foreign, and in Lincoln and Woonsocket there were from four to five times as many of foreign as of American parentage.

The following Table gives the number and percentage of decedents of American and of foreign parentage, in each of the last five years; and in the aggregate for twenty-two years, or from 1858 to 1879 inclusive:

TABLE XLII.

PARENTAGE.	1881.		1880.		1879.		1878.		1877.		1858-1879.	
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
American.....	2,482	49.48	2,517	52.13	2,294	51.29	2,281	51.36	2,279	51.21	52,332	56.25
Foreign .....	2,534	50.52	2,312	47.87	2,178	48.71	2,160	48.64	2,171	48.79	40,702	43.75
Total.....	5,016	100.00	4,829	100.00	4,472	100.00	4,441	100.00	4,450	100.00	93,034	100.00

The number of decedents of foreign parentage have steadily increased from year to year, with scarcely an exception, until, during the year 1881, it exceeded that of American parentage.

It will be seen, by the above Table, that the percentage of decedents of foreign parentage, in 1881, was 50.52 of the whole number.

Previous to 1874 the percentage of decedents of foreign parentage had averaged, during a period of seventeen years, less than 41.00 per cent. An examination of the above Table will show that the average proportion of the same parentage, during the last five years, is about 49.0 per cent. The proportional average of decedents of American parentage, during the same five years, is about 51.0 per cent., while the average of decedents of the same parentage, during a period of seventeen years previous to 1874, was 58.28 per cent.

It will be understood that by the term "foreign parentage" are meant only those whose parents were born in other countries, and not including parents born in the United States, although of direct foreign descent.

## AGE OF DECEDENTS.

There may be found in Table I, on pages two and three, the aggregate and average age of all the decedents reported in 1881, of each sex, in each town and county in the State.

It will be seen, by that Table, that the average age of all the male decedents in 1881 was 31 years, and the average age of all the female decedents, in the same year, was 34 years.

The average age at death in 1881 was slightly more advanced, in both sexes, than in 1880.

The following summary will show the average age of each of the sexes, and of all, in each of the last four years:

	1881.	1880.	1879.	1878.
	Average.	Average.	Average.	Average.
Males.....	30.99 years	29.62 years	31.29 years	29.02 years.
Females.....	34.07 years	32.06 years	33.24 years	31.11 years.
Age of all.....	32.55 years	30.86 years	32.29 years	30.00 years.

The highest average age of male decedents in any town in the State, in 1881, was 76.17 years, in Little Compton; the highest average age of female decedents was 62.33 years, also in Little Compton.

The lowest average age of male decedents during the same time was 17.84 years, in Lincoln, and the lowest average age of female decedents was 22.12 years, also in Lincoln.

The fallacy of dependence on the average age of decedents reported from any town of small population, in single years, has been adverted to in previous reports, and will be readily apparent to any one upon a moment's attention.

When, however, the results of a series of years are aggregated and averages made, a basis is obtained for approximate conclusions as to the relative longevity of the inhabitants of any town furnishing such statistics.

The following Table will show the whole number of deaths, the average annual percentage of deaths to estimated population, and average age of all decedents during ten years, from 1870 to 1880, in each town and in each county in the State:

TABLE XLIII.

TOWNS AND DIVISIONS OF THE STATE.	DEATHS.			
	Whole No. Deaths, 10 years.	Average to population one in every	Per cent.	Average Age of all.
Barrington.....	142	83.45	1.19	43.12
Bristol.....	904	64.37	1.55	34.66
Warren.....	656	61.05	1.64	31.98
<b>BRISTOL COUNTY.....</b>	<b>1,702</b>	<b>64.74</b>	<b>1.54</b>	<b>33.77</b>
Coventry.....	672	68.15	1.47	40.77
East Greenwich.....	500	62.40	1.63	40.17
West Greenwich.....	177	58.42	1.71	45.78
Warwick.....	1,461	79.49	1.26	29.15
<b>KENT COUNTY.....</b>	<b>2,810</b>	<b>72.41</b>	<b>1.38</b>	<b>35.29</b>
Jamestown.....	42	116.19	.86	51.62
Little Compton.....	140	82.57	1.21	53.69
Middletown.....	124	86.61	1.15	45.03
New Shoreham.....	111	103.33	.96	37.39
Portsmouth.....	216	87.64	1.14	47.32
Tiverton.....	285	73.72	1.36	43.05
<b>TOWNS, NEWPORT COUNTY.....</b>	<b>918</b>	<b>85.61</b>	<b>1.17</b>	<b>45.66</b>
<b>NEWPORT CITY.....</b>	<b>2,041</b>	<b>68.73</b>	<b>1.45</b>	<b>36.51</b>
<b>NEWPORT COUNTY.....</b>	<b>2,959</b>	<b>73.97</b>	<b>1.35</b>	<b>39.35</b>
Barrillville.....	677	77.53	1.29	33.92
Cranston.....	1,045	54.43	1.82	37.72
Cumberland.....	640	88.64	1.13	30.56
East Providence.....	592	73.24	1.36	28.26
Foster.....	151	102.20	.98	53.14
Glocester.....	335	62.03	1.61	44.93
Johnston.....	745	67.10	1.49	30.94
Lincoln*.....	1,575	66.08	1.51	22.14
North Providencet.....	113	69.18	1.45	29.60
North Smithfield*.....	322	78.17	1.26	32.15
Pawtucket.....	2,062	89.49	1.12	29.81
Scituate.....	547	74.97	1.32	40.39
Smithfield*.....	421	67.86	1.47	36.12
Woonsocket.....	2,628	51.66	1.92	24.49
<b>TOWNS, PROVIDENCE COUNTY.....</b>	<b>13,440</b>	<b>62.68</b>	<b>1.59</b>	<b>29.15</b>
<b>PROVIDENCE CITY.....</b>	<b>17,587</b>	<b>50.24</b>	<b>1.99</b>	<b>27.76</b>
<b>PROVIDENCE COUNTY.....</b>	<b>31,027</b>	<b>59.60</b>	<b>1.67</b>	<b>28.37</b>
Charlestown.....	151	69.80	1.42	54.33
Exeter.....	159	85.22	1.17	51.58
Hopkinton.....	392	70.41	1.42	40.78
North Kingstown.....	553	63.38	1.58	40.76
South Kingstown.....	602	70.43	1.41	43.99
Richmond.....	299	58.46	1.71	38.18
Westerly.....	603	89.68	1.11	34.66
<b>WASHINGTON COUNTY.....</b>	<b>2,759</b>	<b>72.71</b>	<b>1.37</b>	<b>40.52</b>
<b>WHOLE STATE.....</b>	<b>41,257</b>	<b>62.59</b>	<b>1.59</b>	<b>30.68</b>

If all the towns in the State had the same proportions of persons in each period of life, the above Table would afford a comparatively fair representation of the relative salubrity of each, with some allowance for the habits and modes of living of the people. But as the towns vary so much in the proportion of children and youth in the population, the ages given can only be approximate.

\*Nine years.

†Six years.

The city of Providence is believed to contain a rather large proportion of persons in the younger periods of life.

The following summary will show the average age of the decedents in the city, during the last four years:

	1881.	1880.	1879.	1878.
	Average.	Average.	Average.	Average.
Males.....	28.55.....	28.72.....	28.00.....	24.22.....
Females.....	33.30.....	30.45 ..	29.54 ..	27.88.....
Age of all.....	30.98.....	29.67.....	28.82 ..	26.09.....

The following Table shows the average age of the decedents in each of the larger divisions of the State, in each of the last five years, and also in the aggregate of each of four periods of five years each, comprising the twenty years from 1858 to 1877 inclusive:

TABLE XLIV.

DIVISIONS OF THE STATE.	1881.	1880.	1879.	1878.	1877.	1873-1877. 5 years.	1868-1872. 5 years.	1863-1867. 5 years.	1858-1862. 5 years.
Bristol County .....	37.74	36.43	40.87	29.08	32.19	33.61	35.12	34.78	35.56
Kent County.....	34.46	36.54	35.15	33.68	35.78	36.20	34.77	35.81	32.15
Newport County .....	40.03	42.38	37.62	39.06	43.96	40.68	40.04	33.54	35.01
Providence Co., Towns	30.35	27.40	32.45	30.98	28.16	28.46	25.26	29.16	28.44
Providence City.....	30.98	29.67	28.82	26.09	27.74	27.19	25.45	28.50	25.78
Washington County...	41.13	37.82	43.44	42.34	43.68	41.14	39.67	30.87	34.21
Whole State.....	32.55	30.86	32.29	30.09	30.45	30.28	31.66	30.75	29.42

Table XLIV shows how the average age of decedents varies, from year to year, in the different sections of the State. There was a falling off in 1881, as compared with the previous year, in Kent and Newport counties, and an increase in all the other divisions.

#### PERCENTAGES OF DECEDENTS AT DIFFERENT AGES.

In Table VII, on pages 18 to 23 inclusive, will be found the number of deaths in 1880, in each town and each county, of each sex, and in each period of life, with the percentage of the whole number of deaths in each division to the population of the same.

The following Table shows the percentages of decedents in each division of ages to whole number of deaths, in each of the last six years, and in the aggregate for three periods; one of ten years and

seven months, from June 1st, 1852, to December 31st, 1862, inclusive; one of ten years, from 1863 to 1872 inclusive; and one of ten years, from 1873 to 1881 inclusive:

TABLE XLV.

PERIODS OF LIFE.	1881.	1880.	1879.	1878.	1877.	1876.	10 years. 1873 to 1881.	10 years. 1863 to 1872.	10 years. 7 m'ths. 1852 to 1862.
Under 1 year.....	18.5	18.4	16.1	16.6	17.4	19.5	18.9	18.0	17.6
1 and under 2.....	6.4	7.0	6.8	8.1	8.1	7.4	7.6	7.8	9.8
2 and under 5.....	7.9	9.2	10.1	10.3	9.5	7.0	8.4	7.9	9.6
Total under 5.....	32.8	34.6	33.0	35.0	35.0	33.9	34.9	33.7	37.0
5 and under 10.....	4.6	6.2	6.3	6.2	6.2	4.2	5.0	4.6	5.0
10 and under 20.....	5.2	4.8	4.8	6.1	5.4	5.2	5.8	6.2	5.8
20 and under 30.....	9.6	8.6	8.8	8.8	8.9	9.1	9.2	9.7	9.5
30 and under 40.....	8.0	7.6	7.4	7.6	7.5	7.7	7.8	8.1	8.7
40 and under 50.....	7.6	6.6	6.5	6.4	6.6	6.9	6.9	7.2	7.5
50 and under 60.....	8.2	6.7	7.1	7.6	7.2	7.5	7.2	7.3	6.7
60 and under 70.....	8.8	8.5	10.0	7.9	8.8	9.3	8.2	8.3	6.9
70 and under 80.....	8.6	9.4	9.0	8.8	9.5	9.8	8.8	8.4	7.3
80 and under 90.....	5.4	5.7	5.5	4.8	4.0	5.2	5.1	5.4	4.6
Over 90 and not stated.....	1.2	1.3	1.6	0.8	0.9	1.2	1.1	1.1	1.0
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The proportion of deaths under five years of age, in 1881, was smaller than in 1880, and also, with scarcely an exception, smaller than in any previous year during registration in the State. The proportions of deaths in that period of life, during the thirty years and seven months of registration, was 35.2 per cent. of all, and in 1881 was 32.8 per cent. of all.

The proportions in other periods do not show very remarkable differences, in comparison with previous years.

#### COLORED DECEDENTS.

It has been the custom in the reports on registration in Rhode Island, to give a separate record, for various reasons, of the events of birth, marriage and death of the colored population, although these are always included in the general statistics.

The whole number of deaths of persons of color reported in 1881 was 186. The number is larger by 33 than in 1880. They occurred in the different towns as follows:

Providence City.....	107
Newport City .....	26
Cranston.....	9
East Greenwich.....	7
Bristol, } 6 each.....	12
South Kingstown. }	
Warwick, } 4 each.....	8
East Providence. }	
Pawtucket, } 3 each.....	6
Westerly, }	
Portsmouth, } 2 each.....	8
Lincoln, }	
North Kingstown. }	
Richmond. }	
North Smithfield, } 1 each.....	3
Charlestown and }	
Hopkinton. }	
Total.....	186

*Sex.*—There were, in the 186 decedents of color, 88 males and 98 females.

*Season.*—These 186 deaths were in the different months, as follows:

Months.	Deaths.	Months.	Deaths.	Months.	Deaths.	Months.	Deaths.
January.....	22	April.....	15	July.....	21	October.....	13
February.....	18	May.....	22	August.....	21	November.....	10
March.....	15	June.....	13	September.....	10	December.....	6
—	—	—	—	—	—	—	—
1st Quarter....	55	2d Quarter.....	50	3d Quarter.....	52	4th Quarter....	29

First six months, 105; second six months, 81. Total, 186.

*Age.*—The average age of the colored decedents in Rhode Island, in 1880, was as follows:

Males.....31.28 years. Females...43.05 years.

#### SUMMARY OF COLORED POPULATION: INCLUDING ALL NATIVITIES.

The number of births, marriages and deaths among the colored population of Rhode Island, in the several divisions of the State, in

1881, is given in the following Table, compared with the colored population in each division, as found by the United States Census of 1880:

TABLE XLVI.

COUNTIES.	Colored Population, 1880.	BIRTHS, 1881.		MARRIAGES, 1881.		DEATHS, 1881.	
		Number.	To population, one birth in	Number.	Of population, one person married in	Number.	Of population, one death in
Bristol County.....	209	6	34.8	3	34.8	6	34.8
Kent County.....	330	14	23.5			11	30.0
Newport County.....	1,129	26	43.4	11	51.3	28	40.3
Providence County, Towns.....	496	13	38.1	4	62.0	19	26.1
Providence City.....	3,646	121	30.1	61	30.0	107	34.0
Washington County .....	782	12	65.1	5	78.2	15	32.1
Whole State.....	6,592	192	34.3	84	39.2	186	35.4

The proportions of each of the events of birth, marriage and death of colored persons to colored population in Rhode Island, in 1881, were larger than usual.

The following summary of the last four years will present the facts more clearly:

	One birth in every	One person married in every	One death in every
1878.....	36.4	39.2	40.2
1879.....	39.6	51.4	37.3
1880.....	47.1	43.3	44.0
1881.....	34.3	39.2	35.4

The difference in the proportions of these events to population, between the white and colored race in 1881, may be seen in the following summary:

White.....	One child born in every 40.7; one person married in every 51.1 one death in every 57.5
Colored.....	One child born in every 34.3; one person married in every 39.2; one death in every 35.4
Whole No. white and colored. }	One child born in every 40.9; one person married in every 50.3; one death in every 55.1

The following summary shows the number of births, marriages and deaths among the colored population of Rhode Island, in each of the last twenty-one years, from 1861 to 1881 inclusive:

#### COLORED POPULATION.

1861. . . . .	97 births. . . . .	30 marriages. . . . .	109 deaths.
1862. . . . .	96 births. . . . .	23 marriages. . . . .	90 deaths.
1863. . . . .	73 births. . . . .	68 marriages. . . . .	104 deaths.
1864. . . . .	69 births. . . . .	35 marriages. . . . .	121 deaths.
1865. . . . .	87 births. . . . .	51 marriages. . . . .	129 deaths.
1866. . . . .	124 births. . . . .	65 marriages. . . . .	123 deaths.
1867. . . . .	144 births. . . . .	61 marriages. . . . .	105 deaths.
1868. . . . .	147 births. . . . .	84 marriages. . . . .	111 deaths.
1869. . . . .	136 births. . . . .	70 marriages. . . . .	133 deaths.
1870. . . . .	158 births. . . . .	70 marriages. . . . .	128 deaths.
1871. . . . .	146 births. . . . .	64 marriages. . . . .	116 deaths.
1872. . . . .	171 births. . . . .	76 marriages. . . . .	184 deaths.
1873. . . . .	163 births. . . . .	69 marriages. . . . .	160 deaths.
1874. . . . .	170 births. . . . .	80 marriages. . . . .	151 deaths.
1875. . . . .	156 births. . . . .	76 marriages. . . . .	169 deaths.
1876. . . . .	170 births. . . . .	59 marriages. . . . .	156 deaths.
1877. . . . .	168 births. . . . .	64 marriages. . . . .	160 deaths.
1878. . . . .	172 births. . . . .	80 marriages. . . . .	156 deaths.
1879. . . . .	159 births. . . . .	61 marriages. . . . .	168 deaths.
1880. . . . .	140 births. . . . .	76 marriages. . . . .	153 deaths.
1881. . . . .	192 births. . . . .	84 marriages. . . . .	186 deaths.
<hr/>			
Total. . . . .	2,938 births. . . . .	2,346 marriages. . . . .	2,912 deaths.

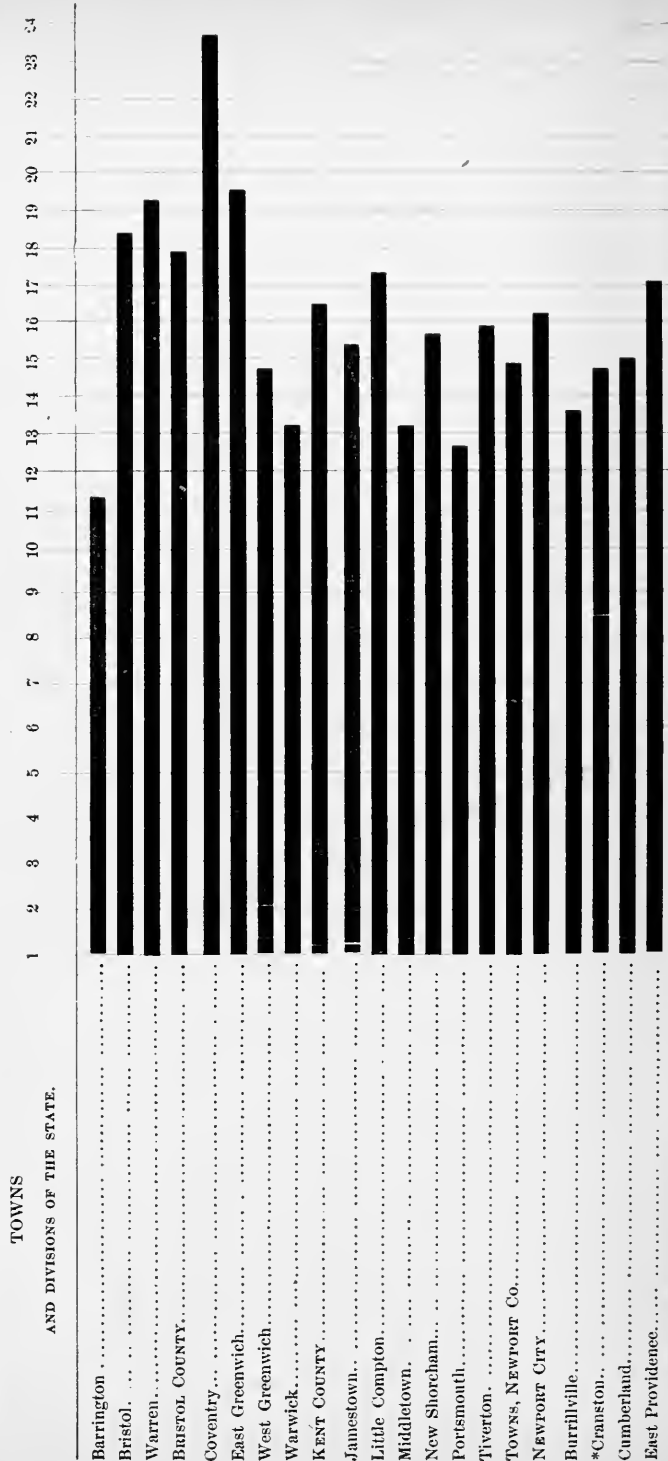
The number of colored births, and the number of deaths of persons of color in Rhode Island, in 1881, were the largest ever recorded, and the number of marriages the largest of any year, with one exception.

It will be noticed that, during the twenty-one years, the number of births of children of color have exceeded the deaths of colored persons by only twenty-six.



# DEATH RATES.

Diagram showing the number of deaths in each 1000 of the population, in each town and in each county in the State, during the year 1881.

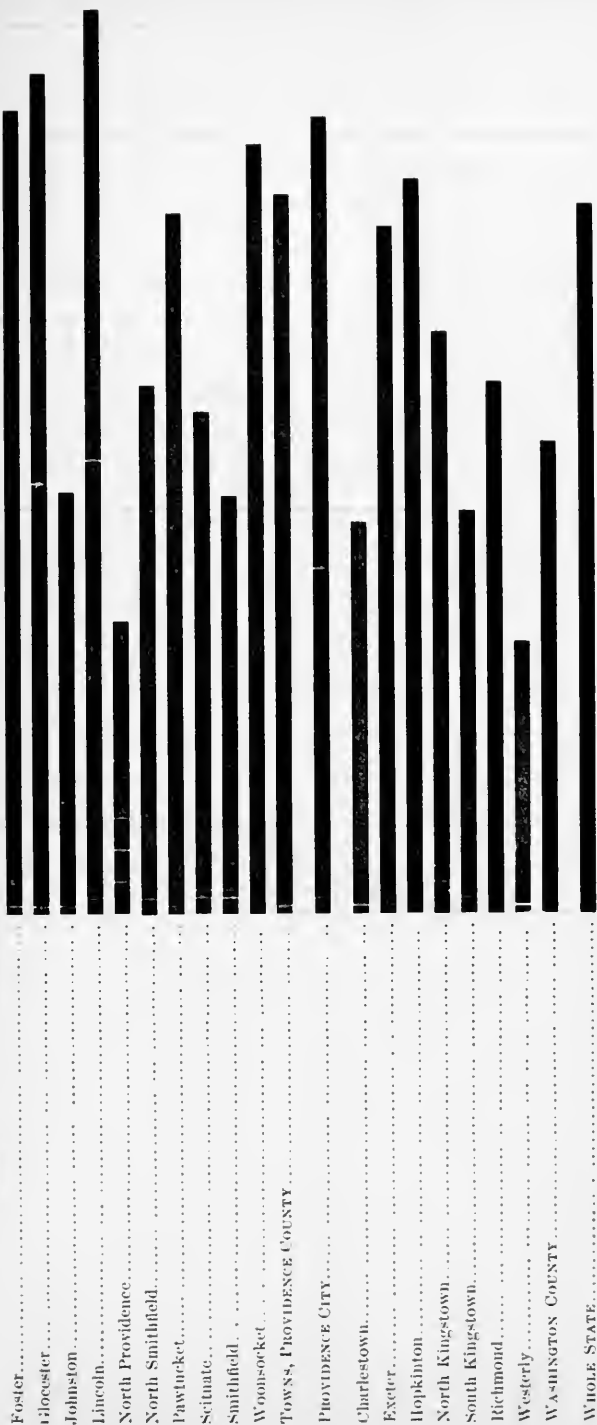


\* Excluding State Institutions.

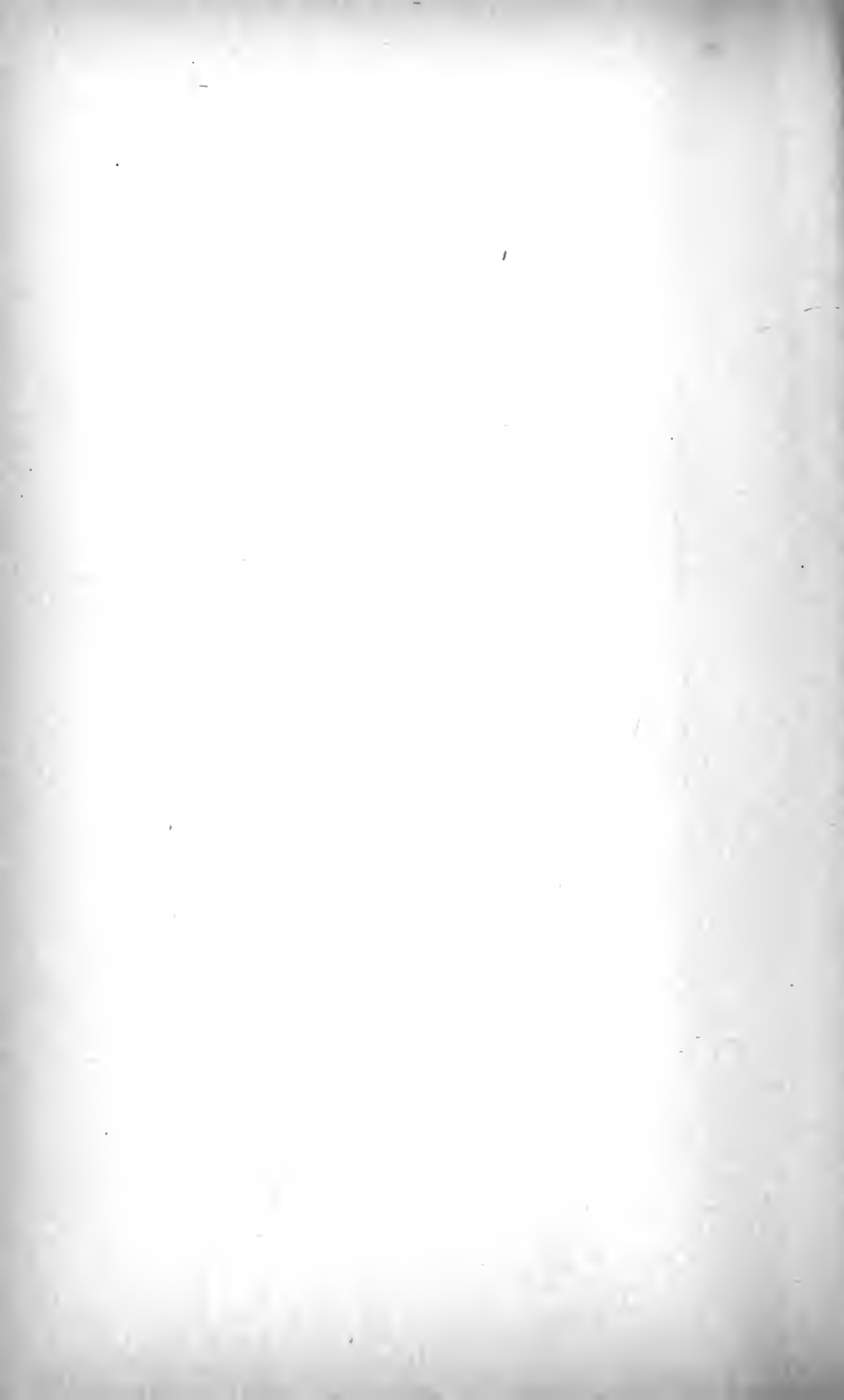
## TOWNS

AND DIVISIONS OF THE STATE.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



The figures at the top of the perpendicular lines indicate, in whole numbers, the number of deaths during the year in every 1000 persons. The spaces are fractional parts of one. For instance, the heavy horizontal line against Barrington reaches about one-third of the space between the perpendicular lines 11 and 12. It shows the death rate of Barrington, in 1881, was about eleven and one-third in each 1000 of the population, according to the Census of 1880.



## CAUSES OF DEATH, 1881.

The statistics of the causes of death in Rhode Island, in 1881, will be found in Tables VIII, IX, X and XII. The whole number of deaths, as previously stated, was 5,016. The number of which the cause of death was reported was 4,669, and the number of which the cause was not stated was 347.

The following Table shows the number of deaths in 1881, in each larger division of the State, and the number and proportion in each division of which the cause was unknown:

TABLE XLVII.

1881.	Bristol County.	Kent County.	Newport County, Towns.	Newport City.	Providence County, Towns.	Providence City.	Washington County.	Whole State.
Number of deaths,....	204	330	127	253	1,681	2,145	267	5,016
Cause not stated,.....	1	26	10	24	230	15	41	347
One in,.....	204.0	13.0	12.7	10.5	7.3	143.0	6.5	14.4

There is still cause for complaint that the parties, whose duty it is to make prompt returns of death, before the burial or removal of the decedent, (see Public Statutes, Chap. 85, Sec. 8) neglect to perform that duty. In no other way can the large number of returns of death received from some towns, stating the *cause* of death was *unknown*, be accounted for. It is not reasonable to believe that one in every six, eight or ten decedents died without the physician or any other person having a knowledge of the cause of death. In the city of Providence the number of deaths returned with statement of cause unknown was, in 1881, in the proportion of one in every 143 decedents. In Bristol county, in the same year, there was one in every 204 decedents. Now is it probable that there could be, in Providence county

towns, one death in every eight or less, and in Washington county one in every seven or less, and nobody know what disease or circumstance caused the death?

The reason is, that the undertakers or other persons who conduct a funeral, do not make returns of death at time of death, and that, when the return is made, it does not have the physician's certificate, and the circumstances attending the decease are forgotten by the person making the return.

TABLE XLVIII.

*Showing the proportion of deaths reported, with "cause unknown," in each Division of the State, and in the whole State, in each of the last nineteen years, from 1863 to 1881 inclusive.*

YEARS.	Bristol County.	Kent County.	Newport County.	Providence County, Towns.	Providence City.	Washington County.	Whole State.
1863, One in .. . . . . .	16.5	11.2	25.5	6.9	46.7	24.7	14.7
1864, One in.....	57.0	12.6	11.6	8.5	45.7	47.6	16.1
1865, One in. . . . .	64.3	27.4	13.4	8.2	55.0	32.9	16.4
1866, One in.....	163.0	11.4	22.4	9.5	45.0	23.3	17.3
1867, One in.....	.....	13.6	34.5	7.4	64.0	14.3	14.8
1868, One in. ....	33.2	5.0	20.3	5.2	46.2	10.1	10.1
1869, One in.....	41.2	5.8	52.8	5.3	83.6	16.1	11.3
1870, One in.....	.....	19.3	23.6	11.8	90.2	26.9	23.6
1871, One in.....	151.0	81.2	7.9	8.4	83.6	9 8	13.0
1872, One in.....	13.3	5.8	10.0	6.8	72.8	9.8	11.3
1873, One in.....	.....	16.0	25.4	9.8	102.5	27.5	20.3
1874, One in.....	54.0	15.2	14.0	17.2	73.7	21.2	27.8
1875, One in.....	55.0	7.4	15.6	13.7	91.2	11.9	20.9
1876, One in.....	11.5	7.9	18.5	9.9	124.3	22.8	19.3
1877, One in.....	.....	17.7	9.7	11.9	323.0	16.0	23.2
1878, One in....	32.1	7.4	9.0	13.7	124.2	21.7	21.1
1879, One in.....	16.6	9.2	12.4	9.5	225.1	8.6	17.6
1880, One in .....	21.9	23.5	13.5	10.5	122.3	17.8	20 7
1881, One in.. . . . .	204.0	13.0	11.2	7.3	143.0	6.5	14.4

By the above Table it will be seen that, of the larger populations of the State, Bristol county alone has, in any year, returned the cause of death of every decedent. In this county full returns of causes of

death have been reported in four of the nineteen years. It fails to be understood why the same completeness may not be attained in other counties, except on the supposition of neglect of duty and violation of law.

The following summary will show the average proportion of all deaths reported with cause unknown, to whole number of deaths, in each of the several divisions, during the last nineteen years:

Bristol County.....	One death, <i>cause unknown</i> , in every 49.3 decedents.
Kent County.....	One death, <i>cause unknown</i> , in every 16.3 decedents.
Newport County.....	One death, <i>cause unknown</i> , in every 18.5 decedents.
Providence County Towns.....	One death, <i>cause unknown</i> , in every 9.6 decedents.
Providence City.....	One death, <i>cause unknown</i> , in every 98.0 decedents.
Washington County.....	One death, <i>cause unknown</i> , in every 19.5 decedents.
Whole State.....	One death, <i>cause unknown</i> , in every 17.6 decedents.

During the ten years, 1863 to 1872 inclusive, the average annual proportion, in Providence county towns, was one death of cause unknown in every 7.8, or one-half of one per cent. smaller than in the year 1881. During the last nine, 1873 to 1881 inclusive, the proportion has, however, been reduced somewhat, that is, to an annual average of one in every 11.5.

In the whole State the average proportion of causes of death unknown to whole number, 1863 to 1872 inclusive, was one in every 14.8, and during the last nine years, 1873 to 1881 inclusive, one in every 20.6.

The figures show improvement, but it should have been much greater.

#### PRINCIPAL CAUSES OF DEATH.

The following Table gives the number of deaths in Rhode Island, from each of thirteen principal causes, showing the order in regard to number, in each of the last three years, and also in the aggregate of deaths for twenty-five years and seven months, from June 1st, 1852, to December 31st, 1877:

TABLE XLIX.

*Showing the order in regard to number of decedents from thirteen principal causes of death.*

1881.	1880.	1879.	June 1st, 1852, to Dec. 31st, 1877—25 yrs. 7 mos.
Whole Number....5,016	Whole Number....4,829	Whole Number....4,472	Whole Number...77,399
Consumption... .. 706	Consumption..... 642	Consumption..... 637	Consumption.....12,627
Pneumonia and Conges. of Lungs 327	Scarlatina.... . . . 468	Pneumonia and Conges. of Lungs 311	Pneumonia and Conges. of Lungs 4,436
Heart, Diseases of.. 264	Pneumonia and Conges. of Lungs 364	Scarlatina..... . 311	Old Age... .. 4,163
Old Age..... . 247	Old Age..... 273	Diphtheria..... 259	Cholera Infantum. 4,002
Cholera Infantum.. 240	Cholera Infantum.. 247	Apoplexy and Paralysis..... 220	Scarlatina..... 3,350
Diphtheria..... 216	Heart, Diseases of.. 231	Old Age..... 220	Fevers, Typhoid, &c..... 2,952
Brain, Diseases of.. 179	Apoplexy and Paralysis..... 215	Heart, Diseases of.. 202	Heart, Diseases of. 2,829
Apoplexy..... 146	Fevers, Typhoid, &c..... 158	Cholera Infantum.. 161	Apoplexy and Paralysis..... 2,579
Cancer..... 145	Diphtheria..... 152	Cancer (all kinds).. 125	Accidents (all kinds)..... 2,349
Fevers, Typhoid, &c..... 143	Accidents..... 137	Fevers, Typhoid, &c..... 123	Dysentery .... 1,975
Accidents..... 142	Convulsions, &c... 133	Convulsions, &c... 104	Diphtheria..... 1,783
Scarlatina..... 138	Cancer..... 125	Accidents..... 102	Convulsions and Fits..... 1,642
Convulsions..... 102	Croup..... 66	Croup..... 96	Croup... .. 1,580

More than one-quarter of all the deaths that occur in Rhode Island are caused by diseases of the lungs and respiratory passages.

Of these, consumption is by far the most destructive. It has stood at the head of the list of the most prominent causes of death during the whole period of registration.

Next to consumption, pneumonia has been the most active destroyer of human life. With but two exceptions pneumonia has, in every year, been second on the list of principal causes.

With the other more prominent causes of death the order, in regard to largest number, varies more or less from year to year.

An examination of Table XLIX will show that, in 1880, scarlatina

was second on the list of principal causes, and that in 1881 it had dropped to the twelfth place.

Diphtheria, which held the fourth place in 1879, dropped to the ninth in the order in 1880, and rose again to the sixth place in 1881.

Cholera infantum stands fourth in the order of principal causes, in the series of twenty-five years, but became only the eighth in 1879, rising to the fifth place in 1880 and in 1881.

Diseases of the heart and diseases of the brain have been gradually increasing in importance as causes of death; diseases of the heart taking the third place in the order in 1881, and diseases of the brain taking the seventh place.

Croup has diminished in importance as a cause of death.

TABLE L.  
*Showing the Deaths in Rhode Island, in 1881, from Sixteen Principal Causes.*

	Accidents.	Apoplexy and Paralysis.	Brain, Diseases of.	Cancer.	Cholera Infantum.	Consumption.	Croup.	Diarrhea.	Diphtheria.	Dysentery.	Fever, Typhoid, &c.	Heart, Diseases of.	Hoopling Cough.	Old Age.	Pneumonia and Congestion of Lungs.	Scarlatina.
Whole Number. ....	142	244	179	145	240	706	101	77	216	42	143	264	68	247	327	138
PAR'AGE. SEX.																
{ Males. ....	100	116	100	40	130	308	45	40	106	16	74	131	33	101	177	79
{ Females. ....	42	128	79	105	110	398	56	37	110	26	69	133	35	146	150	59
{ American. ....	57	170	82	90	102	277	38	28	118	26	74	154	30	167	190	62
{ Foreign. ....	85	74	97	55	138	429	63	49	98	16	69	110	38	80	137	76
SEASON.																
{ January. ....	9	29	12	13	.....	67	10	1	15	.....	9	16	2	27	53	25
{ February. ....	14	18	12	13	3	47	11	2	17	3	8	23	3	20	43	31
{ March. ....	9	17	11	16	1	61	8	1	13	.....	6	18	5	13	26	12
{ April. ....	10	19	19	8	3	61	6	1	19	1	16	20	2	13	61	9
{ May. ....	14	27	21	8	3	66	5	.....	13	1	5	29	4	21	25	14
{ June. ....	7	22	18	17	3	55	4	3	5	.....	4	23	4	18	20	11
{ July. ....	14	11	13	8	76	61	3	13	11	5	7	23	8	16	8	9
{ August. ....	27	17	20	14	81	77	1	18	23	14	10	28	15	24	18	2
{ September. ....	10	21	13	16	43	56	11	15	21	8	14	13	9	22	3	5
{ October. ....	11	14	17	13	22	57	11	14	28	6	23	21	5	29	18	5
{ November. ....	7	22	11	8	5	48	18	4	36	4	22	18	5	26	24	5
{ December. ....	10	26	12	11	.....	50	13	4	15	.....	17	25	6	28	28	10

TABLE L.—Continued.  
*Showing the Deaths in Rhode Island, in 1881, from Sixteen Principal Causes.*

	Accidents.	Apoplexy and Paralysis.	Brain, Diseases of	Cancer.	Cholera Infantum.	Consumption.	Croup.	Diarrhea.	Diphtheria.	Dysentery.	Fever, Typhoid, &c.	Heart, Diseases of.	Hoopmg Cough.	Old Age.	Pneumonia and Congestion of Lungs.	Scarlatina.
AGES.	Under 5 years.....	29	1	84	240	27	91	54	126	19	11	7	64	.....	102	82
	5 and under 10....	11	.....	16	.....	5	9	.....	61	2	14	9	4	.....	4	36
	10 .. " 15 ..	8	.....	7	.....	18	1	.....	14	.....	9	7	.....	.....	2	12
	15 .. " 20 ..	8	.....	1	.....	66	.....	1	5	.....	19	9	.....	.....	5	3
	20 .. " 30 ..	20	7	4	.....	135	.....	.....	4	.....	27	13	.....	.....	15	.....
	30 .. " 40 ..	14	11	14	.....	142	.....	2	4	2	14	26	.....	.....	22	.....
	40 .. " 50 ..	15	20	13	.....	76	.....	2	.....	2	11	33	.....	.....	26	.....
	50 .. " 60 ..	12	36	10	.....	96	.....	3	.....	2	9	37	.....	.....	45	.....
	60 .. " 70 ..	7	55	13	.....	40	.....	3	1	4	12	49	.....	.....	48	.....
	70 .. " 80 ..	4	70	9	.....	22	.....	2	.....	4	11	53	.....	69	31	.....
	80 and over .....	10	42	8	.....	6	.....	2	.....	7	4	21	.....	177	26	.....
	Not stated .....	1	2	.....	.....	3	.....	2	1	.....	.....	.....	.....	1	1	.....
LOCALITY.	Bristol County.....	5	17	6	8	10	2	.....	10	2	4	9	.....	12	10	11
	Kent County.....	14	15	11	10	22	6	1	16	3	13	21	2	24	23	25
	Newport Co., Towns	6	13	4	2	3	2	.....	1	1	6	7	1	18	8	4
	Newport City.....	5	12	7	10	11	31	1	7	1	8	17	1	18	9	8
	Prov. Co., Towns....	55	70	57	42	75	38	32	53	15	58	73	24	93	81	41
	Providence City.....	52	101	80	65	102	49	43	116	14	41	121	40	72	174	45
	Washington Co. ....	5	16	5	8	17	2	.....	13	6	13	16	.....	10	22	4
	.....	.....	.....	.....	.....	30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

## COMMENTS.

In the following remarks upon the various principal causes of death in Rhode Island, during the year 1881, an alphabetical order will be followed, as presented in Table L.

## DEATHS FROM ACCIDENTS.

The number of deaths from accidental causes of all kinds, reported in Rhode Island in 1881, was 142. This number is 40 more than in 1879, and 5 more than in 1880.

Of these 142 deaths, 16 were from burns and scalds; 29 by drowning; 19 from falls; 9 from poisoning; 20 from railroad accidents, and 49 from various accidents too numerous to specify.

Of the whole number of deaths by accidents, 100 were males, and 42 were females; 57 were of American, and 85 were of foreign parentage.

It will be noticed how much larger the proportion of males is than that of females; that is, 70 per cent. of male decedents, to 30 per cent. of female decedents. Of parentage, 60 per cent. was of foreign, and 40 per cent. of American.

The number of deaths in each quarter of the year was as follows:

First Quarter.....	32	Second Quarter.....	51
Third Quarter.....	31	Fourth Quarter.....	28
Total.....	142		

In regard to periods of life, the decedents from accidental causes were divided as follows: Under 5 years, 29; 5 and under 10, 11; between 10 and 20, 16; between 20 and 40, 34; between 40 and 60, 27; over 60, 21; and one, age not stated.

In regard to sectional divisions of the State, 5 of the deaths from accidental causes were in Bristol county; 14 in Kent county; 11 in Newport county; 5 in Washington county, and 107 in Providence county. In Providence county, with less than 72 per cent. of the whole population of the State, there was 75 per cent. of the whole number of deaths from accidents, and in Providence city, with about 38 per cent. of the population of the State, there was about 37 per cent. of the deaths from the same causes.

The whole number of deaths from accidental causes, in 1881, *in proportion to the whole number of deaths* from specified causes, in the State, was about 3 per cent.; the extremes of proportion in whole number, from accidental causes, were 9.8 per cent. in Kent county, and 3.5 per cent. in Washington and Bristol counties.

## PROPORTION TO POPULATION.

In *proportion to population* the accidental deaths were as follows:

Bristol County.....	One in every 2,277 of the population.
Kent County.. ..	One in every 1,471 of the population.
Newport County.....	One in every 2,197 of the population.
Providence County Towns.....	One in every 1,691 of the population.
Providence City .....	One in every 2,016 of the population.
Washington County.....	One in every 4,499 of the population.
Whole State .....	One in every 1,947 of the population.

## APOPLEXY AND PARALYSIS.

The number of deaths reported in Rhode Island, in 1881, caused by apoplexy and paralysis, was 244.

This number is 29 more than in the preceding year, and 24 more than in 1879.

The following Table will present some of the natural and local relations of these causes of death, during the last seventeen years:

TABLE LI.

*Showing the whole number and percentage of the Deaths in the State, from Apoplexy and Paralysis combined; and also the Sex and Parentage of the Decedents from these causes, and the number of the same in each of the Counties, from 1865 to 1881 inclusive.*

YEARS.	Whole Number of Deaths.	APOPLEXY AND PARALYSIS.											
		Number from Apoplexy and Paralysis.	Per cent.	SEX.		PARENTAGE.		DIVISIONS OF THE STATE.					
				Males.	Females.	American.	Foreign.	Bristol County.	Kent County.	Newport County.	Providence County, Towns.	Providence City.	Washington County.
1865.....	3,405	100	2.93	52	48	81	19	9	8	14	23	38	8
1866.....	2,970	92	3.09	46	46	80	12	8	5	17	24	29	9
1867.....	2,889	134	4.29	59	65	101	23	9	9	13	35	49	9
1868.....	2,912	111	3.81	56	55	86	25	9	6	19	27	46	4
1869.....	3,382	117	3.46	55	62	92	25	12	13	18	20	48	6
1870.....	3,238	130	4.32	68	62	105	25	14	10	10	39	52	5
1871.....	3,344	156	4.66	73	83	113	43	10	17	15	40	61	13
1872.....	4,247	125	2.97	62	63	96	29	17	9	10	27	52	10
1873.....	4,403	134	3.04	59	75	109	25	9	8	17	26	57	17
1874.....	4,229	156	3.69	84	72	120	36	14	10	16	42	59	15
1875.....	4,317	166	3.61	79	87	133	33	7	13	17	46	75	8
1876.....	4,116	165	4.01	79	86	130	35	13	11	13	45	68	1
1877.....	4,450	181	4.07	87	94	123	58	10	10	16	52	74	19
1878.....	4,441	188	4.23	104	84	145	43	12	16	21	58	66	15
1879.....	4,472	220	4.92	114	106	146	74	12	9	29	71	89	10
1880.....	4,829	215	4.67	109	106	157	58	18	13	22	71	78	13
1881.....	5,016	244	4.86	116	128	170	74	17	15	25	70	101	16
Total.....	66,668	2,624	3.82	1,284	1,332	1,987	637	200	182	292	716	1,042	192

There was a slight increase in the percentage of deaths from apoplexy and paralysis, in proportion to the whole number of deaths in 1881, as compared with the previous year. This is in accordance with the rule established by more than twenty years of registration.

From less than three per cent., in 1865, the proportion has gradually increased until, during the last three years, it has been nearly five per cent.

It will be noticed, by reference to the columns of parentage, that the increased proportion has been almost entirely in the class of foreign parentage.

TABLE LII.

*Showing the ages of Decedents from Apoplexy and Paralysis, in each of the last seventeen years.*

APOPLEXY AND PARALYSIS.	PERIODS OF LIFE.							
	Under 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 and over.
1865.....		3	5	6	19	20	28	19
1866.....	1	1	7	16	9	24	27	7
1867.....	2		6	6	15	38	40	17
1868.....	2	3	3	11	16	27	31	16
1869.....	1	1	5	12	20	28	34	15
1870.....	4	1	10	9	12	33	41	20
1871.....	3	4	7	14	21	46	45	15
1872.....	1	4	5	17	20	26	41	11
1873.....	2	3	4	14	22	35	37	16
1874.....	1	2	9	9	30	39	40	25
1875.....	6	2	8	19	23	40	45	22
1876.....	4	4	4	13	25	43	49	23
1877.....	1	2	9	12	24	50	61	22
1878.....	4	2	7	14	41	40	53	26
1879.....	4	6	11	18	27	57	59	38
1880.....	1	2	8	18	21	59	70	34
1881.....	1	7	11	20	36	55	70	42
Total.....	38	47	119	228	381	660	760	368

Apoplexy, as a cause of death, is almost wholly limited to advanced periods of life. Paralysis, from lesions or disturbances of function of the nervous system, may occur in earlier periods of life, and therefore find a place in the above Table. Some physicians almost invariably certify to a death primarily from apoplexy, if the death does not occur immediately, as a death caused by paralysis. It may be assumed that a very large percentage of deaths of persons over fifty years of age, reported as caused by paralysis, were in reality caused by apoplexy.

It may be of interest to show the proportion of deaths from apoplexy and paralysis, in 1881, to the population of the different sections of the State in 1880.

#### PROPORTION TO POPULATION.

Bristol County.....	One in every 670 persons.
Kent County.....	One in every 1,372 persons.
Newport County.....	One in every 967 persons.
Providence County, Towns.....	One in every 1,330 persons.
Providence City....	One in every 1,038 persons.
Washington County .....	One in every 1,406 persons.
Whole State .....	One in every 1,133 persons.

It will not fail to be noticed how large the proportion of deaths, in Bristol and Newport counties, was to the population of each, as compared with the proportions to population of Kent county, Providence county towns and Washington county.

#### BRAIN, DISEASES OF.

In Table L, under the head of "Diseases of the Brain," are included all those reported as "Cerebral Meningitis," "Cerebritis," "Congestion," "Inflammation," and "Diseases of the Brain."

The number of decedents from these several causes, grouped under the head of "Diseases of the brain," was 139, in 1878; 157, in 1879; 161, in 1880; and 179, in 1881. The proportion to whole mortality in the State was 3.72 per cent. in 1879, 3.49 per cent. in 1880, and 3.57 in 1881. Of the 179 decedents, 100 were males, and 79 were females. In regard to parentage, 82 were of American, and 97 of foreign parentage.

The deaths in the different seasons of the year were as follows:

First Quarter.....	35	Second Quarter.....	58
Third Quarter.....	46	Fourth Quarter.....	40
Total.....	179		

In relation to the periods of life, 84 of the deaths were of children under 5 years of age, or nearly 50.0 per cent. of the whole number.

#### CANCER.

Cancer was reported as the cause of 145 deaths in 1881. The term "Cancer" includes all the different varieties.

The number of decedents from this cause, in 1880 and in 1879, was 125 in each year.

The percentage of whole number of deaths, in 1881, was 2.90, as against 2.96 in 1879, and 2.72 in 1880.

The varieties of cancer, as reported, may be found in Tables VIII and IX, on pages 24, 25, 30 and 31. They were classed as follows: Cancer in various general localities, or cancer (various), 80; cancer of the breast, 16; of the stomach, 27; of the uterus, 22.

In 1881 the deaths from cancer, in the several seasons of the year, were as follows:

First Quarter.....	42	Second Quarter.....	33
Third Quarter.....	38	Fourth Quarter.....	32
Total.....	145		

#### CHILD-BIRTH.

Cases of death are reported as having been caused by child-birth, without stating whether from hemorrhage, convulsions, nervous shock, local injury or what. As child-birth was the primary cause, the immediate cause is not necessarily important. Under the head of "Child-birth," therefore, are included puerperal fever, puerperal convulsions, and whatever causes that can only occur as the result of child-birth.

The number reported in 1881 was 60; 32 of which were from the immediate effects of child-birth, without specifying particular cause, 6 from puerperal convulsions, and 22 from puerperal fever.

Of the 32 decedents from the immediate effects of child-birth, 15 were of American, and 17 were of foreign parentage; of the 6 from puerperal convulsions, 4 were of American, and 2 of foreign parentage; of the 22 from puerperal fever, 7 were of American, and 15 of foreign parentage.

Of the whole number, 26 were of American, and 34 of foreign parentage.

In the different seasons of the year they occurred as follows:

First Quarter.....	23	Second Quarter.....	18
Third Quarter.....	12	Fourth Quarter.....	7

Of the decedents, 3 were under 20 years of age, 26 between 20 and 30, 25 between 30 and 40, and the remaining 6 over 40 years of age.

#### CHOLERA INFANTUM.

The number of deaths reported as caused by cholera infantum, in 1881, was 240.

This number is smaller by 7 than that of the previous year, as may be seen by reference to Table LIII.

This disease, as a cause of death, largely diminished in importance during the years 1878 and 1879, but during the last two years has again assumed an importance approaching that of 1876 and 1877, although, at that, considerably less than in some years previous to 1876.

During the five years, from 1872 to 1876 inclusive, the number of deaths in Rhode Island, from cholera infantum, was 1,509; during the five years from 1877 to 1881 inclusive, the number was 1,075.

The proportions to the whole number of deaths were about as follows:

	Five years. 1872-1876.	Five years. 1877-1881.
Cholera Infantum.....	7.1 per cent.....	4.6 per cent.

Of the 240 decedents, in 1881, 130 were males and 110 females; 102 were of American, and 138 of foreign parentage: 185 were under the age of one year, 44 were between 1 and 2 years of age, and 11 between 2 and 3 years of age.

In regard to season, three deaths were reported in February; four in April; three in May; three in June; 200, or about 80.0 per cent., in the months of July, August and September, and 27 during the rest of the year.

The following Table shows the whole number of reported deaths from cholera infantum; the sex and parentage of the decedents, in each of the larger divisions of the State, in each of the last seventeen years:

TABLE LIII.

YEARS.	CHOLERA INFANTUM.										
	Number of deaths.	SEX.		PARENTAGE.		DIVISIONS OF THE STATE					
		Males.	Females.	American.	Foreign.	Bristol County.	Kent County.	Newport County.	Providence County, Towns.	Providence City.	Washington County.
1865.....	145	63	82	61	84	17	7	14	48	50	9
1866.....	110	67	43	50	60	1	7	8	39	47	8
1867.....	117	64	53	62	55	4	3	7	45	40	9
1868.....	154	85	69	66	88	13	4	12	44	70	11
1869.....	151	81	70	79	72	6	15	6	48	65	11
1870.....	213	106	107	95	118	15	15	13	69	93	8
1871.....	172	85	87	82	90	14	12	12	59	62	13
1872.....	391	195	196	167	224	16	16	21	157	151	30
1873.....	285	148	137	165	120	17	14	16	120	99	19
1874.....	265	140	125	115	150	4	12	5	84	134	26
1875.....	318	156	162	155	163	20	16	20	108	136	18
1876.....	250	131	119	105	145	5	12	29	68	124	12
1877.....	259	139	120	96	163	12	13	9	96	122	7
1878.....	168	96	72	73	95	7	14	7	64	71	5
1879.....	161	88	73	71	90	8	16	21	51	59	6
1880.....	247	123	124	109	138	13	11	10	93	100	20
1881.....	240	130	110	102	138	10	22	14	75	102	17
Total, 17 years.....	3,646	1,897	1,749	1,653	1,993	182	209	224	1,268	1,534	229

It will be seen that cholera infantum was the cause of 3,646 deaths, during the last seventeen years, of which 1,897 were males, 1,749 were females.

There were 1,653 of American parentage, and 1,993 of foreign parentage, or about 120 foreign to each 100 of American.

## CONSUMPTION.

The number of deaths caused by consumption, in 1881, was 706. This is much the largest number ever reported in Rhode Island in any single year.

Although the number is considerably larger than in any previous year, the proportion to the whole number of deaths, from given causes, is less than in many previous years, as may be seen in Table LIV.

The average annual proportion of a period of twenty years, previous to 1880, was 16.84 per cent. The proportion in 1881 was 15.12 per cent.

*Sex.*—Of the 706 deaths from consumption, in 1881, 308 were males, and 398 were females. There were 129 female decedents to each 100 male decedents; or 43.6 males, and 56.4 females in each 100 decedents.

There are, in every year, a considerably larger number of female decedents, from consumption, than of male decedents.

During the ten years from 1872 to 1881, inclusive, the number of reported deaths from consumption, in Rhode Island, was 6,333. Of this number 2,792 were males, and 3,541 were females.

There were, therefore, 127 females to each 100 male decedents; or 44.1 males and 55.9 females in each 100 decedents.

*Parentage.*—Of the 706 decedents from consumption, in 1881, 277 were of American parentage, and 429 of foreign parentage.

The proportions were 155 of foreign to each 100 of American parentage; or 39.2 decedents of American parentage, and 60.8 decedents of foreign, in each 100.

The proportion of foreign parentage is much larger than ever previously reported.

During the ten years from 1872 to 1881, inclusive, the whole number of deaths from consumption, as reported, was 6,333. Of this number 2,963 were of American, and 3,370 were of foreign parentage.

The proportions were, therefore, as follows: 113.7 of foreign parentage to each 100 of American; or 46.8 of American parentage, and 53.2 of foreign in each 100 decedents.

During the five years from 1877 to 1881, inclusive, the whole number of deaths from consumption was 3,322. Of that number 1,434 were of American, and 1,888 were of foreign parentage.

There were 132 decedents of foreign parentage to each 100 of American; or 43.2 American, and 56.8 foreign in each 100 decedents.

*Season.*—During the year 1881 the largest number of deaths from consumption, in any quarterly period, occurred in the third quarter. This circumstance is not in accordance with the rule of many years.

The following summary will show the number in each quarterly period:

First Quarter.....	175	Second Quarter.....	182
Third Quarter.....	194	Fourth Quarter.....	155
Total.....	706		

Contrary to rule, also, was the occurrence of the largest monthly number of deaths in August. Following August in the order of largest mortality were January, May, March, April and July.

In 1881, 377, or more than 53 per cent. of the whole number of deaths from consumption, were of persons between twenty and forty years of age. In order to show more concisely the relation of age to mortality, the following synopsis is presented:

Age.	No. of Deaths.
Under 10 years of age.....	32
Between 10 and 20 years.....	84
Between 20 and 30 years.....	235
Between 30 and 40 years.....	142
Between 40 and 50 years.....	76
Between 50 and 70 years.....	106
Over 70 years .....	31
<hr/>	
Total .....	706

The distribution of mortality from consumption, in the different sections of the State, is very unequal, not only in the percentage to the whole number of deaths in each section, but also in proportion to the population.

The following Table shows the total deaths from all reported *known causes*, with the number and percentage of deaths from consumption, in each of the larger divisions of the State, and in the whole State, in each of the last sixteen years, and in the aggregate for a period of twenty years, from 1860 to 1879 inclusive:

TABLE LIV.—CONSUMPTION.—*Number and Percentage.*

COUNTIES.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	Total 20 years. 1860-1879.
<b>BRISTOL COUNTY.</b>																	
Total Deaths.....	162	144	129	165	146	150	184	173	159	162	148	201	187	141	209	203	3,144
Consumption.....	31	18	21	26	26	16	23	16	18	21	19	27	23	16	19	25	423
Percentage.....	19.13	12.50	16.28	15.76	17.81	10.67	12.50	9.24	11.32	12.97	12.83	13.43	12.30	11.35	9.09	12.31	13.45
<b>KENT COUNTY.</b>																	
Total Deaths.....	198	214	168	265	238	281	248	241	252	263	209	251	249	277	293	313	4,761
Consumption.....	41	56	38	50	46	63	33	42	32	43	28	42	41	38	45	36	870
Percentage.....	20.70	26.17	22.62	18.86	19.33	22.42	13.30	17.43	12.69	16.35	13.39	16.73	16.47	13.72	15.35	11.20	18.28
<b>NEWPORT COUNTY.</b>																	
Total Deaths.....	342	302	289	259	271	214	262	366	221	277	280	243	265	330	324	346	6,017
Consumption.....	52	47	43	40	37	23	29	44	26	41	45	33	31	45	34	51	857
Percentage.....	15.18	15.56	14.88	15.44	13.66	10.75	11.06	12.02	11.77	14.80	16.07	13.58	11.69	13.64	10.49	14.74	14.24
<b>PROVIDENCE COUNTY, TOWNS.</b>																	
Total Deaths.....	883	902	779	912	964	989	1,331	1,389	1,217	1,230	1,110	1,391	1,308	1,233	1,427	1,451	20,385
Consumption.....	171	210	158	180	172	195	221	197	139	201	211	222	229	197	189	220	3,661
Percentage.....	19.36	23.28	20.29	19.74	17.84	19.72	16.73	14.18	11.42	16.34	19.01	15.96	17.51	15.98	13.35	15.16	17.95

TABLE LIV.—CONSUMPTION.—*Number and Percentage.—Continued.*

COUNTIES.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	Total 20 years. 1860-1879.
<b>PROVIDENCE CITY.</b>																	
Total Deaths.....	1,013	945	1,086	1,240	1,249	1,239	1,581	1,725	1,965	1,894	1,850	1,932	1,973	2,017	2,063	2,130	28,194
Consumption.....	200	189	214	210	238	195	242	230	270	297	284	294	305	293	322	344	4,649
Percentage.....	19.74	20.00	19.71	16.85	19.06	15.74	15.31	13.33	13.74	15.68	15.35	15.22	15.46	14.53	15.60	16.15	16.49
<b>WASHINGTON COUNTY.</b>																	
Total Deaths.....	201	187	173	241	233	222	265	292	263	284	306	240	249	250	270	226	4,513
Consumption.....	28	39	38	43	56	35	49	51	44	47	68	43	47	48	33	30	861
Percentage.....	13.93	20.86	21.96	17.84	24.04	15.76	18.49	17.47	16.73	16.55	22.22	17.91	18.88	21.82	12.22	13.27	19.08
<b>WHOLE STATE.</b>																	
Total Deaths.....	2,799	2,694	2,624	3,082	3,101	3,065	3,871	4,186	4,077	4,110	3,903	4,258	4,231	4,218	4,596	4,669	67,214
Consumption.....	523	559	512	549	475	527	597	580	529	650	655	661	676	637	642	706	11,321
Percentage.....	18.68	20.74	19.51	17.81	18.52	17.03	15.41	13.86	12.96	15.79	16.78	15.52	15.98	15.10	14.02	15.12	16.84

The changes that occur from year to year, in the different divisions of the State, in regard to the number of specified causes of death, and the number and percentage from consumption, are concisely shown in Table LIV.

The proportion of deaths from consumption, during 1881, to all deaths from given causes, was less in every division of the State, with the exception of Newport county, than the average during the period of twenty years.

In comparison with the previous year, there were various changes.

In Bristol county the proportion was 12.31 per cent., as against 9.09 per cent. in 1880. In 1866 the proportion in this county was 19.13 per cent. The average of twenty years was 13.45 per cent.

Kent county reports the lowest proportion, in 1881, that was ever recorded. The ratio was 11.20 per cent., which is less than two-thirds the average proportion of twenty years. In 1868 and 1871 the proportions were more than twice as large.

Newport county presents a percentage slightly in excess of the average of twenty years. The ratio was 14.74 per cent., as against 10.49 per cent. in 1880.

Providence county towns show a proportion of 15.16 per cent., as against 17.95 per cent. for the twenty year period. In 1867 the ratio was 23.28 per cent.

Providence city shows the least variation of any section presented in Table LIV. In 1881, however, the percentage was larger than in any year since 1870. But the ratio of 1881, which was 16.15 per cent., is less than the average of twenty years. During the five years preceding 1871 the average proportion was 19.09 per cent. During the ten years from 1872 to 1881 inclusive, the proportion was 15.03 per cent.

Washington county has usually a large percentage of mortality from consumption, but during the last two years the proportion has greatly lessened. The lessened ratio has not been made by a larger number of deaths from other causes, but from a largely diminished number of deaths from consumption.

During the ten years from 1870 to 1879, inclusive, the number of deaths from consumption, in Washington county, was 488, or an annual average of about 49.

In 1880 the number was 33, and in 1881 the number was 30.

The proportion in 1881 was 13.27 per cent., and the proportion during twenty years previous to 1880 was 19.08 per cent.

There has also been a gradually lessening proportion of deaths from consumption in the whole State, during the last quarter of a century. The fluctuations of percentage one year with another, during the period of diminishing proportions, have been small in degree.

During the ten years from 1862 to 1871, inclusive, the average annual proportion of deaths from consumption was 18.33 per cent.

During the ten years from 1872 to 1881, inclusive, the average annual proportion was 15.05 per cent.

It will be noticed that the proportion of the whole State, 15.12 per cent., is less than that of the period of twenty years.

#### CONSUMPTION. PROPORTION OF DEATHS TO POPULATION.

It will be understood that the preceding remarks have been in relation to the *proportion* of deaths from consumption, to the whole number of deaths from *all specified causes*.

It may be of interest to ascertain the *proportion* of deaths from consumption, *to the population*, in the different divisions of the State.

The results of 1879, 1880 and 1881 are based on the enumeration of the United States census of 1880.

The results of the long period of nineteen years, and the periods of five years each, are based on the semi-decennial enumerations of population, by the State and National censuses.

#### 1879.

	Total Deaths from Consumption.	Of population one in every	Of the population.
Bristol County .....	16.....	712.....	or..... 1.40 in each 1,000
Kent County.....	38.....	542 ..	or..... 1.84 in each 1,000
Newport County.....	45.....	538... ..	or..... 1.86 in each 1,000
Providence County, Towns...	197.....	473.....	or..... 2.11 in each 1,000
Providence City.....	293.....	358.....	or..... 2.80 in each 1,000
Washington County.....	48.....	470.....	or..... 2.13 in each 1,000

#### 1880.

	Total Deaths from Consumption.	Of population one in every	Of the population.
Bristol County.....	19 ..	599.....	or..... 1.66 in each 1,000
Kent County.....	45.....	458.....	or..... 2.18 in each 1,000
Newport County.....	34.....	711.....	or..... 1.40 in each 1,000
Providence County, Towns .....	189.....	496.....	or..... 2.03 in each 1,000
Providence City.....	322.....	326.....	or..... 3.07 in each 1,000
Washington County.....	33.....	681.....	or..... 1.50 in each 1,000

## 1881.

	Total Deaths from Consumption.	Of population one in every	Of the Population.
Bristol County .....	25.....	456..... or.....	2.19 in each 1,000
Kent County.....	36.....	572..... or.....	1.75 in each 1,000
Newport County.....	51.....	470..... or.....	2.12 in each 1,000
Providence County, Towns.....	220.....	423..... or.....	2.36 in each 1,000
Providence City.....	344.....	305..... or.....	3.24 in each 1,000
Washington County.....	30.....	749..... or.....	1.34 in each 1,000
State .....	706.....	391..... or.....	2.56 in each 1,000

## 1860-1878.

## NINETEEN YEARS.

	Yearly average. No. of deaths. Consumption.	Yearly average. Of population one in every	Of the population.
Bristol County.....	21.4.....	442..... or.....	2.26 in each 1,000
Kent County.....	43.8.....	403..... or.....	2.48 in each 1,000
Newport County.....	42.7.....	492..... or.....	2.03 in each 1,000
Providence County, Towns.....	182.3.....	403..... or.....	2.48 in each 1,000
Providence City.....	229.0.....	349..... or.....	2.87 in each 1,000
Washington County.....	42.0.....	452..... or.....	2.21 in each 1,000

	5 years, 1865-1869. Of population one in every	5 years, 1870-1874. Of population one in every	5 years, 1875-1879. Of population one in every	3 years, 1879-1881. Of population one in every
Bristol County.....	368.....	471.....	525.....	569.....
Kent County.....	340.....	432.....	535.....	514.....
Newport County.....	440.....	626.....	576.....	562.....
Providence County, Towns.....	370.....	434.....	397.....	460.....
Providence City.....	247.....	282.....	342.....	328.....
Washington County.....	461.....	427.....	394.....	608.....
State .....	344.....	386.....	396.....	418.....

The changes that occur, from year to year, in the *proportion* of the deaths from consumption to the *population* of the different divisions of the State, are very clearly shown in the summaries of the three single years, that is, 1879, 1880 and 1881.

Thus it will be seen that Bristol county varied from one death by consumption in every 712 of the population, in 1879, to one in every 599 in 1880, and one in every 456 in 1881. Kent county varied from

one in every 542, in 1879, to one in 458 in 1880, and one in every 572 in 1881. It is evident that the results of single years are quite inconclusive, as regards the relative or absolute liability to consumption, of any division or population of the State.

But the proportions to population, as ascertained by the averages of a series of years, afford conclusions which, if not absolutely exact, are, at least, very closely approximate thereto.

In comparing the proportions of one division with another, there is a possibility of small error from the difference of movements in the population of the divisions, that is, the rapidity of increase or decrease of population.

In each of the five year periods the proportions are slightly larger than the actual population would warrant, the proportions being based upon the population according to the semi decennial enumerations of the years, with which each of the periods commenced.

#### CONSUMPTION. PROPORTION TO POPULATION BY PARENTAGE.

On a previous page, there were given the proportions of death from consumption in the two general classes of parentage; that is, American and foreign. The proportions there given and the comparisons made, were of the absolute number of deaths in each class from consumption, in relation to the combined or total population.

It is now proposed to give the proportions of mortality from consumption, in each class of parentage, in relation to the separate population of each.

The proportions are given for three periods of five years each, extending from 1865 to 1879 inclusive; and one period of two years, 1880 and 1881; and are based on the population of each class at the commencement of each period.

Persons who were the children of mixed marriages (i. e. American father and foreign mother, or vice versa) are classed with the parentage of the fathers.

Deaths, by parentage, did not have separate consideration in the general reports previous to 1865.

The populations of the two classes, at the commencement of the periods taken, were respectively as follows:

	1865.	1870.	1875.	1880.
American Parentage.....	117,316.....	124,591.....	134,722.....	139,117.....
Foreign Parentage. ....	67,649.....	92,762.....	123,517.....	137,414.....

The number of deaths from consumption in each class of population respectively, in each term of years, were as follows:

	1865-1869.	1870-1874.	1875-1879.	1880-1881.
	No. deaths from	No. deaths from	No. deaths from	No. deaths from
	Consumption.	Consumption.	Consumption.	Consumption.
American Parentage.....	1,575.....	1,507.....	1,499.....	564.....
Foreign Parentage.....	1,114.....	1,301.....	1,780.....	784.....

The following summary will show the mortality from consumption in each class, in proportion to the population of each:

	5 years, 1865-1869.	5 years, 1870-1874.	5 years, 1875-1879.	2 years, 1880-1881.
	DEATHS FROM CONSUMPTION			
Of population.	One in every	One in every	One in every	One in every
Of American Parentage..	372.....	413.....	449.....	493.....
Of Foreign Parentage.....	303.....	356.....	347.....	351.....

It will not fail to be observed how regularly the proportions of mortality from consumption, in the population of American parentage, have diminished during the last seventeen years. It will also be observed that the proportions of mortality from consumption, in the population of foreign parentage, diminished from the first to the second period, since which time the proportions in that population have not materially changed.

The variations of the proportions of the mortality from consumption, in the two classes of population, may be presented in a different and perhaps clearer way, as follows:

	5 years, 1865-1869.	5 years, 1870-1874.	5 years, 1875-1879.	2 years, 1880-1881.
	NUMBER OF DEATHS FROM CONSUMPTION			
Of population.	in each 10,000.	in each 10,000.	in each 10,000.	in each 10,000.
Of American Parentage.....	26.8.....	24.2.....	22.3.....	20.2.....
Of Foreign Parentage.....	33.0.....	28.1.....	26.0.....	28.5.....
Total Population.....	29.1.....	26.0.....	25.2.....	23.9.....

From the above statistics the inference is unavoidable that consumption, as a cause of death in Rhode Island, has gradually diminished since 1865. The facts shown by the statistics reasonably warrant the following conclusions:

1. That consumption, in the total population of Rhode Island, has gradually lessened in frequency of occurrence, or that medical treatment has been more successful in its cure.

2. That the lessened frequency, or more successful treatment of consumption, has been confined almost exclusively to the population of American parentage.

3. That the proportion of mortality from consumption has always been larger, in the population of foreign parentage.

4. That the mortality from consumption, in the class of foreign parentage, has not diminished in proportion to the population of the same parentage, during the last twelve years.

The following extract, from the late report of the city registrar of Providence, presents statistics and remarks, in respect to mortality from consumption in that city, quite in conformity with the foregoing:

“But the true rate of mortality from consumption, in the two classes of the population, is best shown by a direct comparison of the number of deaths with the actual population. At four different periods, in Providence, we have had censuses showing the parentage of the population; and at the same periods we have had full and accurate reports of the decedents from consumption, by parentage. Taking these periods, and comparing the decedents from consumption by parentage with the population by parentage, we find the following results for the city of Providence:

Population of American parentage.

1856.....	One death from consumption in 268.2.
1865 .....	One death from consumption in 310.1.
1875.....	One death from consumption in 415.0.
1880.....	One death from consumption in 435.2.

Population of Foreign parentage.

1856 .....	One death from consumption in 262.6.
1865 .....	One death from consumption in 248.8.
1875.....	One death from consumption in 288.4.
1880 .....	One death from consumption in 268.0.

Total population.

1856.....	One death from consumption in 266.
1865.....	One death from consumption in 280.
1875.....	One death from consumption in 336.
1880.....	One death from consumption in 326.

These figures show the following important facts:

1. In the population of American parentage in Providence there has been a very remarkable change in the mortality from consumption, during the last twenty-five years. In 1856 there was, in this population, one death from consumption in 268.2; in 1880 there was only one death in 435.2. This decrease, as seen from the figures, has been continuous during the whole period.

2. In the population of foreign parentage, in Providence, the *rate of mortality* from consumption has changed only very slightly in the last twenty-five years. In 1856 the rate was one death in 262.6 of the population; in 1880 it was one in 268.0; and during this time it has been both slightly higher and lower than these rates. The rate of mortality from consumption, among the population of foreign parentage, in 1880, was almost precisely the same as the rate in the population of American parentage in 1856."

#### CONSUMPTION IN MASSACHUSETTS.

Consumption as a cause of death has, as far back in years as comparative registration of deaths reaches, shown a larger mortality in proportion to the population, in Massachusetts, than it has in Rhode Island. The proportions of the sexes of the decedents from that cause, in the two States, have not largely varied.

The following summary will show the proportion of deaths, from consumption, to the living population in Massachusetts, during the different years named:

Deaths from consumption in each	1865.	1870.	1875.	1879.	1880.	1881.
10,000 of population .....	36.8.....	34.3.....	34.7.....	30.4.....	30.8.....	31.5.....

It will be seen that the proportional mortality, from consumption, has diminished very considerably in Massachusetts, since 1865.

#### CROUP.

There were 101 decedents from croup, in Rhode Island, in 1881. The number is larger than ever before reported, with one exception. In 1876 the number was 102.

Of the 101 decedents from croup, 45 were males; and 56 were females. The proportions were 80 males to each 100 females.

There were 38 decedents of American parentage, and 63 of foreign parentage. The proportions were as 166 of foreign, to each 100 of American parentage.

Of the 101 deaths from croup, 91 were of children under 5 years of age; and 87 were reported from Providence county.

#### DIPHTHERIA.

The number of decedents from diphtheria has varied much more, one year with another, than of the decedents from croup.

The number reported in 1881 was 216. This number is considerably larger than that of the year 1880, which was 152.

Of the 216, 106 were males; and 110 were females.

In regard to parentage, 118 decedents were of American; and 98 were of foreign parentage; or 120 American to each 100 of foreign parentage.

#### CROUP AND DIPHTHERIA.

It has been customary to compare these diseases together, in their various relations, because of some resemblances in their pathological developments.

The following Table has been presented by itself, from year to year, for the purpose of affording continuous comparisons of the two diseases from 1858, the year in which diphtheria was first reported as a cause of death.

The Table shows the number of deaths and the sex of the decedents in Rhode Island, from croup and from diphtheria, in each of the seven years, from 1858 to 1864 inclusive:

TABLE LV.

YEARS.	CROUP.			DIPHTHERIA.		
	Males.	Females.	Total.	Males.	Females.	Total.
1858.....	35	34	69	1	5	6
1859.....	37	21	58	10	10	20
1860.....	27	30	57	24	43	67
1861.....	32	26	58	66	74	140
1862.....	34	39	73	31	50	81
1863.....	51	46	97	73	82	155
1864.....	48	57	105	67	93	160
Seven years.....	264	253	517	272	357	629

The aggregate number of decedents from diphtheria, during the first five years of its prevalence in the State, were exactly the same as the total decedents from croup during the same period. During the succeeding two years, diphtheria had exceeded croup about fifty per cent.

The following Table gives the number, the sex and the *parentage* of the decedents from croup and from diphtheria, in Rhode Island, in each of the last sixteen years, from 1865 to 1880 inclusive:

TABLE LVI.

YEARS.	CROUP.					DIPHTHERIA.				
	Number of Deaths.	SEX.		PARENTAGE.		Number of Deaths.	SEX.		PARENTAGE.	
		Males.	Females.	American.	Foreign.		Males.	Females.	American.	Foreign.
1865 . . . . .	94	44	50	32	62	82	41	41	62	20
1866 . . . . .	53	26	27	22	31	64	26	38	36	28
1867 . . . . .	50	25	25	21	29	31	14	17	19	12
1868 . . . . .	30	13	17	14	16	20	8	12	11	9
1869 . . . . .	41	19	22	14	27	33	18	15	19	14
1870 . . . . .	53	29	24	25	28	33	17	16	18	15
1871 . . . . .	72	39	33	31	41	57	23	34	29	28
1872 . . . . .	66	37	29	17	49	48	24	24	35	13
1873 . . . . .	68	30	38	35	33	45	24	21	35	10
1874 . . . . .	65	39	26	38	27	59	30	29	37	22
1875 . . . . .	96	53	43	43	53	33	17	16	18	15
1876 . . . . .	102	50	52	42	60	159	77	82	69	90
1877 . . . . .	95	48	47	34	61	492	239	253	233	259
1878 . . . . .	93	45	48	43	50	435	224	211	201	234
1879 . . . . .	96	58	38	40	56	259	121	138	143	116
1880 . . . . .	66	32	34	27	39	152	73	79	75	77
1881 . . . . .	101	45	56	38	63	216	106	110	118	98
Total, 17 years . . . . .	1,241	632	609	516	725	2,218	1,082	1,136	1,158	1,060

The remarkable difference in the number of decedents one year with another, between croup and diphtheria, will hardly fail to be noticed. During the last seventeen years the largest number of deaths in any year, from croup, was 102, in 1876, and the smallest number was 30, in 1868.

During the same time, the variation in the number of deaths from diphtheria, was from 20, in 1868, to 492, in 1877.

Diphtheria has declined largely in number of decedents since 1877, numbering only 152 in 1880, and 216 in 1881.

## CROUP AND DIPHTHERIA. SEX AND PARENTAGE.

Of the whole number of decedents from croup, during the twenty-four years from 1858 to 1881 inclusive, 896 were males, and 862 were females.

During the seventeen years from 1865 to 1881, inclusive, the numbers were 632 males and 609 females. It will be seen that, although the mortality is largest among the males, the difference in proportion, about 104 males to each 100 females, is not large.

During the same seventeen years the decedents from diphtheria numbered 1,082 males, and 1,136 females; or 105 females to each 100 males, reversing the sex having the largest mortality in croup.

Of the decedents from *croup by parentage*, during the same period, 516 were of American, and 725 were of foreign; or 71 American to each 100 of foreign parentage.

Of the decedents from *diphtheria by parentage*, during the same period, 1,158 were of American, and 1,060 were of foreign; or 109 American to each 100 of foreign parentage.

## SEASON AND MORTALITY.

The influence of season, in regard to mortality from croup and diphtheria, may be seen in the following Table, continued from last year, where these diseases may also be compared with scarlatina, to which they bear resemblance in some respects. The Table will give the whole number of deaths during the periods named, and the average monthly and quarterly percentages of deaths from each disease:

TABLE LVII.

MONTHS.	CROUP. 1853-1879.		DIPHTHERIA. 1858-1879.		SCARLATINA. 1853-1879.	
	Number of Deaths.	Per cent.	Number of Deaths.	Per cent.	Number of Deaths.	Per cent.
January.....	228	12.38	221	9.13	416	11.08
February.....	199	10.83	160	6.62	398	10.61
March.....	160	8.67	183	7.57	367	9.78
First Quarter.....	587	31.88	564	23.32	1,181	31.47
April.....	130	7.06	134	5.54	306	8.18
May.....	94	5.11	154	6.36	331	8.79
June.....	90	4.89	157	6.49	315	8.39
Second Quarter.....	314	17.06	445	18.39	952	25.36
July.....	58	3.15	118	4.88	215	5.72
August.....	54	2.92	145	5.99	173	4.70
September.....	116	6.31	216	8.93	179	4.70
Third Quarter.....	228	12.38	479	19.80	567	15.12
October.....	198	10.76	324	13.39	250	6.66
November.....	242	13.15	322	13.32	337	8.98
December.....	272	14.77	285	11.78	466	12.41
Fourth Quarter.....	712	38.68	931	38.49	1,053	28.05
Totals.....	1,841	100.00	2,419	100.00	3,753	100.00

An examination of the preceding Table will show that *season* has a very decided and unmistakable influence upon the production of mortality from the three named diseases, if not upon the prevalence of the same.

More extended comments and observations in relation to the influence of season, and the variableness of the influence in the production of mortality from the three different diseases, may be found in a preceding Registration Report (the twenty-seventh).

The following Table will show the statistics of scarlatina for each of the last twenty-seven years, from 1855 to 1881 inclusive, the whole number of deaths in the State, the number and percentage and sex of the decedents from scarlatina, and the number from scarlatina in

each division of the State. It also shows, from 1865 to 1881 inclusive, the parentage of the decedents from scarlatina:

TABLE LVIII.

YEARS.	Whole Number of Deaths.	SCARLATINA.											
		Scarlatina.		SEX.		PARENTAGE.		DIVISIONS OF THE STATE.					
				Males.	Females.	American.	Foreign.	Bristol County.	Kent County.	Newport County.	Providence County, Towns.	Providence City.	Washington County.
1855.....	1,846	71	3.8	41	30	.....	.....	22	.....	1	6	42	.....
1856.....	2,042	208	10.2	109	99	.....	.....	3	1	3	57	144	.....
1857.....	2,325	147	6.3	69	78	.....	.....	.....	20	47	47	32	1
1858.....	2,616	234	8.9	118	116	.....	.....	5	11	75	61	72	10
1859.....	2,270	71	3.1	34	37	.....	.....	5	2	4	14	45	1
1860.....	2,686	64	2.4	31	33	.....	.....	4	3	7	17	17	16
1861.....	2,927	57	1.9	24	33	.....	.....	2	2	7	9	28	9
1862.....	2,591	47	1.8	25	22	.....	.....	3	4	3	19	14	4
1863.....	3,207	91	2.8	40	51	.....	.....	1	.....	23	24	33	10
1864.....	3,360	266	8.0	120	146	.....	.....	1	19	19	80	141	6
1865.....	3,405	255	7.5	130	125	134	121	33	17	3	86	108	8
1866.....	2,970	28	0.9	15	13	12	16	5	.....	8	12	3	.....
1867.....	2,889	14	0.5	6	8	10	4	1	.....	1	2	10	.....
1868.....	2,912	93	3.2	47	46	32	61	2	3	3	34	50	1
1869.....	3,382	286	8.4	126	160	128	158	17	23	12	72	138	24
1870.....	3,238	75	2.3	37	38	28	47	1	6	3	22	35	8
1871.....	3,344	66	1.9	41	25	31	35	1	3	1	37	21	13
1872.....	4,247	53	1.2	22	31	22	31	.....	1	4	27	19	2
1873.....	4,403	287	6.5	124	163	163	124	4	2	42	80	132	27
1874.....	4,229	462	10.9	231	231	176	286	27	17	1	133	268	16
1875.....	4,317	185	4.3	85	100	121	64	8	30	3	35	94	15
1876.....	4,116	80	1.9	34	46	42	38	3	2	7	21	35	12
1877.....	4,450	62	1.4	26	36	29	33	14	4	3	21	12	8
1878.....	4,441	86	1.9	41	45	35	51	3	5	3	14	57	4
1879.....	4,472	311	7.4	161	147	130	181	3	6	4	37	255	6
1880.....	4,829	468	10.0	215	253	216	252	22	30	11	143	243	19
1881.....	5,016	138	3.0	79	59	62	76	11	25	12	41	45	4
Totals, 27 years...	92,530	4,205	4.6	2,034	2,171	1,371	1,578	201	236	310	1,141	2,093	224

## DISEASES OF THE HEART.

There were 264 decedents in Rhode Island, in 1881, from diseases of the heart.

Of the 264, 131 were males, and 133 were females. The proportions have very seldom been so nearly equal.

In regard to parentage, 154 were of American parentage, and 110 were of foreign.

The proportions were 140 American to each 100 of foreign parentage.

The following Table shows, for each of the last seventeen years, 1865 to 1881 inclusive, the whole number of deaths in the State; the number and percentage, and the sex and parentage of the decedents from diseases of the heart, and the number of the same in each division of the State.

TABLE LIX.

YEARS.	Whole Number of Deaths.	DISEASES OF THE HEART.											
		Diseases of the Heart.	Per cent.	SEX.		PARENTAGE.		DIVISIONS OF THE STATE.					
				Males.	Females.	American.	Foreign.	Bristol County.	Kent County.	Newport County.	Providence County, Towns.	Providence City.	Washington County.
1865 . . . .	3,405	98	2.88	51	47	65	33	6	5	8	27	47	5
1866 . . . .	2,970	115	3.87	58	57	90	25	7	8	10	41	40	9
1867 . . . .	2,889	114	3.94	67	47	81	33	4	9	7	37	49	8
1868 . . . .	2,912	116	3.96	58	58	79	37	5	8	12	35	52	4
1869 . . . .	3,382	128	3.78	75	53	79	49	2	13	11	36	62	4
1870 . . . .	3,238	117	3.61	77	40	77	40	4	10	8	35	59	1
1871 . . . .	3,344	144	4.30	78	66	91	53	4	7	8	42	77	6
1872 . . . .	4,247	189	4.45	104	85	119	70	5	9	10	59	93	13
1873 . . . .	4,403	189	4.29	83	106	122	67	4	11	14	48	101	11
1874 . . . .	4,229	214	5.06	109	105	150	64	6	6	28	50	106	18
1875 . . . .	4,317	186	4.31	84	102	113	73	2	13	22	49	88	12
1876 . . . .	4,116	166	4.03	86	80	109	57	9	11	10	38	86	12
1877 . . . .	4,450	182	4.09	94	88	110	72	3	7	9	57	93	13
1878 . . . .	4,441	166	3.73	88	78	109	57	5	11	15	38	83	14
1879 . . . .	4,472	202	4.78	114	88	127	75	8	20	16	38	111	9
1880 . . . .	4,829	231	5.03	125	106	146	85	9	21	29	59	104	9
1881 . . . .	5,016	264	5.01	131	133	154	110	9	21	24	73	121	16
Totals, 17 years. . .	66,660	2,821	4.14	1,482	1,339	1,821	1,000	92	190	231	762	1,372	164

Of the 2,821 persons deceased from diseases of the heart, in the last seventeen years, 1,482 were males, and 1,339 were females; or 52.53 males and 47.47 females in each 100; or 106.8 males to each 100 females.

The disproportions in relation to parentage of the decedents from diseases of the heart, during the seventeen years, are quite remarkable.

Of the 2,821 decedents, during that period, 1,821 were of American parentage, and 1,000 of foreign parentage.

The proportions would therefore stand as follows:

To every 100 of foreign parentage there were about 182 of American; or 64.3 American, and 35.7 of foreign parentage in each 100 deaths.

The following Table shows the number of decedents from diseases of the heart, in each divisional period of life, in each of the last seventeen years:

TABLE LX.

YEARS.	Under 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 and over.	Not stated.
1865.....	14	4	6	7	22	17	19	9	.....
1866.....	18	8	14	17	10	23	21	4	.....
1867.....	11	11	10	13	22	16	27	4	.....
1868.....	15	5	13	11	14	28	25	5	.....
1869.....	21	4	14	18	20	22	21	7	1
1870.....	19	6	11	13	20	21	23	3	1
1871.....	9	12	10	19	24	36	28	6	1
1872.....	27	12	22	19	31	36	29	13	....
1873.....	19	11	28	18	25	35	42	9	2
1874.....	20	16	26	21	27	50	40	12	2
1875.....	14	16	25	20	32	29	41	9	.....
1876.....	14	10	15	19	20	38	39	10	1
1877.....	15	11	20	18	27	45	33	13	....
1878.....	16	8	18	16	26	36	35	11	.....
1879.....	19	9	13	25	33	51	36	16	.....
1880.....	15	10	18	23	38	49	49	28	1
1881.....	32	13	26	33	37	49	53	21	.....
Totals, 17 years.....	298	166	289	310	427	581	561	180	9

The results of seventeen years registration, with record of ages of decedents from diseases of the heart, show in periods of twenty years of life, the following percentages:

Under 20 years of age.....	10.5 per cent.
Between 20 and 40.....	16.3 per cent.
Between 40 and 60.....	26.2 per cent.
Between 60 and 80.....	40.6 per cent.
Over 80.....	6.1 per cent.
Not stated.....	0.3 per cent.

It will be seen that nearly one half of all the deaths from diseases of the heart, were of persons over sixty years of age.

Diseases of the heart have acquired large importance as a cause of death. It was third in the order of largest mortality, in 1881.

#### PNEUMONIA AND CONGESTION OF THE LUNGS.

It is seldom that inflammation of the lungs is not second in the order of largest mortality, in any year.

The number of deaths from this cause, reported in 1881, was 327. This number has been exceeded in several previous years. The proportion to whole number of deaths, in 1881, was 6.5 per cent. In 1875 the proportion was 9.3 per cent.

Of the 327 decedents from pneumonia and congestion of the lungs, 177 were males, and 150 were females. The proportions were 118 males to each 100 females.

By parentage there were 190 of American, and 137 of foreign parentage.

The proportions were 122.8 of American, to each 100 of foreign parentage.

The following Table shows, for each of the last seventeen years, the whole number of deaths reported in Rhode Island; the number and the percentage, with the sex and the parentage of the decedents from pneumonia and congestion of the lungs, and the number in each year, in each division of the State:

TABLE LXI.

YEARS.	PNEUMONIA AND CONGESTION OF THE LUNGS.												
	Whole Number of Deaths.	Pneumonia, &c.	Per cent.	SEX.		PARENTAGE.		DIVISIONS OF THE STATE.					
				Males.	Females.	American.	Foreign.	Bristol County.	Kent County.	Newport County.	Providence County, Towns.	Providence City.	Washington County.
1865.....	3,405	175	5.1	80	95	110	65	8	11	21	49	74	12
1866.....	2,970	193	6.5	94	99	127	66	13	17	13	59	81	10
1867.....	2,889	172	5.9	68	104	103	69	8	12	12	56	68	16
1868.....	2,912	191	6.6	99	92	120	71	9	5	16	54	92	15
1869.....	3,382	190	5.6	104	86	110	80	7	10	10	63	88	12
1870.....	3,238	182	5.6	102	80	96	86	6	12	15	55	78	16
1871.....	3,344	218	6.5	104	114	129	89	12	21	11	68	85	21
1872.....	4,247	229	5.4	119	110	125	104	11	1	9	74	120	14
1873.....	4,403	234	5.3	127	107	143	91	11	9	10	65	123	16
1874.....	4,229	250	5.9	118	132	143	107	6	13	7	73	136	15
1875.....	4,317	400	9.3	199	201	243	157	14	27	25	105	198	31
1876.....	4,116	339	8.2	164	175	162	177	13	23	16	97	163	27
1877.....	4,450	226	5.1	104	122	127	99	10	7	14	81	98	16
1878.....	4,441	317	7.1	143	174	176	141	10	11	18	110	140	28
1879.....	4,472	311	7.4	148	163	163	148	7	15	15	103	156	15
1880.....	4,829	364	7.9	180	184	177	187	26	16	18	92	192	20
1881.....	5,016	327	6.5	177	150	190	137	10	23	17	81	174	22
Totals, 17 years.	66,660	4,318	6.5	2,130	2,188	2,444	1,874	181	233	247	1,285	2,066	306

The difference in the proportions of the sexes of the decedents from pneumonia, during the period of seventeen years, is not large, that is, 104 females to each 100 males.

The large proportion of decedents in the male population, during 1881, was a very unusual occurrence.

Of parentage, there were 130 of American, to each 100 of foreign parentage.

We may reasonably infer, from the facts presented, that, taking into consideration the population of each of the classes of sex and parentage, the female sex, and the population of American parentage, have been more liable to the disease, or that they have been less able to resist fatal results.

The following Table shows, for each of the last seventeen years, the

number of decedents in Rhode Island from pneumonia and congestion of the lungs, in each of the several periods of life:

TABLE LXII.

YEARS.	Under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 and over.	Not Stated.
1865.....	65	4	2	....	14	11	15	17	21	21	5	....
1866.....	57	4	4	5	12	10	14	21	25	32	9	....
1867.....	57	9	2	3	10	11	13	16	25	13	12	1
1868.....	70	4	3	3	15	8	16	13	19	27	13	....
1869.....	64	11	1	2	11	12	9	28	25	16	11	....
1870.....	84	6	5	4	6	7	8	14	20	19	8	1
1871.....	71	7	2	7	10	17	16	16	35	17	19	1
1872.....	83	5	1	7	17	20	19	22	24	19	11	1
1873.....	105	4	8	3	10	14	16	17	24	23	10	....
1874.....	76	9	4	6	17	17	25	21	40	27	8	....
1875.....	120	9	3	8	22	30	35	39	61	43	28	2
1876.....	116	5	4	3	20	20	32	35	48	39	17	....
1877.....	79	2	....	7	15	15	24	27	22	24	9	2
1878.....	115	9	4	10	14	17	28	20	42	45	13	....
1879.....	102	8	1	3	14	27	26	35	38	38	9	....
1880.....	95	18	3	16	14	33	37	46	47	43	12	....
1881.....	102	4	2	5	15	22	26	45	48	31	26	1
Total.....	1461	118	49	92	236	291	359	432	564	477	230	9

Of the whole number of deaths from pneumonia during seventeen years, that is, 4,318, there were 1,461 decedents of four years of age and under, or 33.8 per cent. There were, during the same time, 1,271 decedents of fifty years of age and over.

These facts do not prove that pneumonia, as a disease, prevails to the same extent in persons under five and over fifty years of age, but that the very young and the more advanced in life have less recuperative vigor, less vital resistance, and consequently more largely fall victims to the disease. It is also true that the same physical weakness renders the same classes more liable to attacks of pneumonia, and that in proportion to the population of each class the prevalence of the disease is larger in each, than in other periods of life.

## TYPHOID FEVER.

The number of deaths in Rhode Island, in 1881, reported under the general title of "Fevers," was 143. This number is 15 less than in 1880, and 29 more than in 1879. The number includes all reported under the following specific terms: "Bilious," 2; "Gastric," 3; "Remittent," 9; "Intermittent," 1; "Typhoid or Typhus," 115; "Fever," 13. It is probable that *nearly* all fevers occurring in Rhode Island are essentially typhoid, the type being modified by a variety of circumstances. Of course the term is not designed to cover all febrile states, dependent on malaria or a variety of acute and chronic inflammations.

The following Table shows, for each of the last seventeen years, the whole number of deaths in the State; the number and the percentage, and the sex and parentage of the decedents from fevers, and the number in each division of the State:

TABLE LXIII.

YEARS.	Whole No. of Deaths.	TYPHOID FEVER.											
		Typhoid Fever.	Per cent.	SEX.		PARENTAGE.		DIVISIONS OF THE STATE.					
				Males.	Females.	American.	Foreign.	Bristol County.	Kent County.	Newport County.	Providence County, Towns.	Providence City.	Washington County.
1865.....	3,405	229	6.4	114	115	149	80	8	17	22	82	79	21
1866.....	2,970	150	5.0	73	77	82	68	7	5	32	54	45	7
1867.....	2,889	119	4.1	60	59	84	35	9	10	17	47	31	5
1868.....	2,912	84	2.9	45	39	57	27	4	5	7	30	23	15
1869.....	3,382	101	3.0	53	48	79	22	7	7	1	37	33	16
1870.....	3,238	153	4.7	66	87	80	73	5	11	14	57	49	17
1871.....	3,344	125	3.7	60	65	69	56	2	8	10	41	51	13
1872.....	4,247	179	4.2	87	92	91	88	4	12	6	75	65	17
1873.....	4,403	172	3.9	73	99	113	59	4	9	9	61	56	33
1874.....	4,229	117	2.8	57	60	56	61	1	10	3	37	58	8
1875.....	4,317	147	3.4	73	74	90	57	1	4	6	49	69	18
1876.....	4,116	126	3.0	65	61	71	55	5	9	13	44	33	22
1877.....	4,450	134	3.0	63	71	65	69	8	10	8	52	44	12
1878.....	4,441	150	3.4	68	82	77	73	13	15	7	62	58	14
1879.....	4,472	111	2.7	47	67	63	51	4	13	6	44	40	7
1880.....	4,829	158	3.4	74	84	94	64	8	12	5	66	52	15
1881.....	5,016	143	2.8	74	69	74	69	4	13	14	58	41	13
Totals, 17 years,	66,660	2,401	3.5	1,152	1,249	1,394	1,007	91	170	180	896	827	253

During 1881 the number of decedents from "Fever" was not only less than in 1880, but the percentage to whole number of deaths was very considerably smaller.

The proportion of the sexes was not in accordance with the rule of late years, the number of males being in excess of females.

The proportions were 107.2 males, to each 100 females.

In regard to parentage, the difference was less than in the average of years, the proportions standing 107.2 American, to each 100 of foreign parentage.

During the period of seventeen years the proportions of the sexes of the decedents, from "Fever," were 108.4 females, to each 100 males; or 52 females and 48 males in each 100 decedents.

During the same period the proportions of the decedents, by parentage, were 138.4 of American, to each 100 of foreign parentage; or 58 of American parentage and 42 of foreign, in each 100 decedents.

The following Table shows the number of decedents from fevers, in each division of ages, in each of the last seventeen years, in the State of Rhode Island:

TABLE LXIV.

TYPHOID FEVER.		PERIODS OF LIFE.										
YEARS.		Under 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 and over.	Not stated.
1865.....		35	18	46	54	30	14	18	7	5	2	...
1866.....		23	10	21	26	21	16	9	14	10	...	...
1867.....		17	6	23	33	12	11	8	4	2	2	1
1868.....		10	7	10	21	8	8	10	4	5	...	...
1869.....		10	8	14	28	9	7	9	8	6	2	...
1870.....		15	13	28	39	16	20	7	7	6	1	...
1871.....		13	10	20	28	18	16	9	4	5	2	...
1872.....		17	18	34	54	20	9	12	11	3	1	...
1873.....		27	12	34	31	25	13	13	7	8	2	...
1874.....		10	14	26	32	9	5	10	3	6	2	...
1875.....		23	14	19	43	18	10	10	6	4	...	...
1876.....		21	10	15	24	14	9	6	16	6	3	2
1877.....		22	13	13	36	20	8	5	7	2	2	1
1878.....		17	16	27	47	13	11	12	2	3	2	...
1879.....		19	7	14	26	15	6	3	12	8	3	1
1880.....		25	12	24	43	23	12	10	5	3	...	1
1881.....		25	9	19	27	14	11	9	12	11	4	...
Totals.....		329	197	387	602	285	186	160	129	93	23	6

## COMPARATIVE RESULTS.

The following Table shows the percentage of *total mortality* from *specified* causes, resulting from *several prominent* causes, as reported in 1881, in the whole State, and in the several divisions of the State; and also the percentages of the same causes in the whole State, in 1880 and 1879:

TABLE LXV.

CAUSES OF DEATH.	Bristol County.	Kent County.	Newport County, Towns.	Newport City.	Providence County, Towns.	Providence City.	Washington County.	Whole State, 1881.	Whole State, 1880	Whole State, 1879.
Accidents (all kinds).....	2.47	4.48	5.12	2.19	3.78	2.44	2.21	3.04	3.51	2.43
Apoplexy and Paralysis. ....	8.38	4.80	11.11	5.27	4.82	4.74	7.08	5.23	4.67	5.21
Brain, Diseases of .....	2.96	3.52	3.41	3.50	3.93	4.14	2.21	3.84	3.44	3.73
Cancer .....	3.94	3.19	1.71	4.37	2.90	3.05	3.54	3.11	2.72	2.96
Cholera Infantum.....	1.92	7.03	2.56	4.80	5.17	4.79	7.52	5.15	5.43	3.81
Consumption.....	12.32	11.50	17.09	13.53	15.16	16.15	13.28	15.12	14.02	15.09
Convulsions and Fits.....	2.46	3.51	.85	1.75	3.03	1.74	.....	2.18	2.88	2.47
Croup.....	.99	1.92	1.71	.87	2.62	2.30	.89	2.16	1.45	2.28
Debility.....	3.94	.61	.....	4.37	4.00	1.65	3.98	2.61	3.09	2.35
Diarrhea .....	.....	.32	.....	.44	2.20	2.02	.....	1.65	1.52	1.26
Diphtheria.....	4.92	5.11	.85	3.06	3.65	5.45	5.75	4.63	3.40	6.14
Dysentery.....	.99	.96	.85	.44	1.03	.66	2.65	.90	.61	1.04
Fevers.....	1.97	4.16	5.12	3.50	4.00	1.92	5.74	3.05	3.37	2.70
Heart, Diseases of.....	4.43	6.71	5.98	7.43	5.03	5.68	7.08	5.68	5.03	4.78
Whooping Cough.....	.....	.61	.85	.44	1.65	1.88	.....	1.46	.44	1.02
Hydrocephalus.....	2.46	.61	.....	.44	1.10	1.50	.....	1.20	1.01	1.36
Kidneys, Diseases of .....	3.45	1.60	.85	1.31	.96	2.25	.44	1.69	2.02	1.88
Liver, Diseases of.....	.98	.64	1.71	1.75	.48	1.08	1.33	.92	1.20	1.17
Malaria.....	3.45	.....	.....	1.31	.55	1.60	.....	1.11	1.27	1.16
Old Age.....	5.91	7.66	15.38	7.86	6.41	3.38	4.43	5.29	5.95	5.22
Pneumonia and Congestion of the Lungs.....	4.93	7.35	6.81	3.93	5.58	8.17	9.73	7.01	7.90	7.37
Scurfatum.....	5.42	7.99	3.42	3.49	2.82	2.11	1.77	2.96	9.99	7.37

It will be understood that the above percentages are not the proportions to the population of each division, but to the number of deaths from named causes in each.

These percentages vary considerably, from year to year, as might reasonably be expected. As, for instance, if there should be the same number of deaths from consumption, in any division, for two or more consecutive years, the percentages might vary considerably, from the increased or decreased number of decedents from other diseases.

An examination of the Table will show that accidents were the cause of a larger proportional number of deaths, in Newport county towns, than in any other division of the State. The absence in those towns of large manufacturing industries, where accidents more frequently happen, would seem to make the statement quite improbable. But the number of accidental deaths in those towns, in 1881, was only six. Five of these were from drowning. The whole number of deaths, from all known causes, was 117. It will, therefore be readily seen that the proportion of 6 to 117 is 5.12 per cent.

Apoplexy, consumption, fevers, and old age, also, show larger proportions in those towns, because of the smaller number of deaths from cholera infantum, diphtheria, diseases of the heart, scarlatina, &c.

In proportion to population, the number of deaths from all causes is, in nearly if not quite every year, smaller in those towns than in any other division of the State.

An examination of the three last columns of the Table will show the variations that have occurred in the percentages of diseases, during the last three years, in the whole State.

It will be seen that but very few causes of death have maintained a nearly uniform or fixed ratio, and some have varied very largely in the whole State, as well as in the several divisions.

Of the latter, the diseases that frequently occur epidemically are in point. Scarlatina shows a very large falling off, that is, from 9.99 per cent., in 1880, to 2.96 per cent. in 1881.

Diphtheria increased in prevalence and fatality, during 1881, showing a mortality percentage of 4.63, as against 3.40 per cent. in 1880.

Diseases of the heart belong in the first named class, as having an approximately fixed proportion. But diseases of the heart, though not increasing rapidly in regular prevalence and as a cause of death, are nevertheless assuming larger proportions from year to year.

The following summary will show the changes that have occurred, during the last six years, in the percentage of diseases of the heart to total mortality from given causes:

	1881.	1880.	1879.	1878.	1877.	1876.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Diseases of the Heart.....	5.68.....	5.03.....	4.78 .....	3.92.....	4.28...	4.25

Taking the whole year, there was no largely increased number of fatal diseases prevailing in the State, in 1881. In two localities diphtheria was epidemically prevalent in a severe form, and scarlet fever was somewhat prevalent in Kent county.

The increased number of deaths reported, is believed to be the result of more complete returns.

C. H. F.

December, 1882.

# VITAL STATISTICS.

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## COLLECTION OF RETURNS.

It will be observed that the foregoing statistics are for the year 1881, while this report is ostensibly for the year 1882. The explanation is this: The law provides that "the town clerks of the several towns, or any person whom the board of aldermen of any city, or the town council of any town, may appoint for that purpose, shall obtain all information concerning births, marriages and deaths occurring among the inhabitants of their respective towns; and on or before the first Monday in March, *annually*, shall make duly certified returns thereof to the secretary of the state board of health, for the year ending on the thirty-first day of December next preceeding."

It will be obvious, then, that the facts in relation to vital statistics are collected during the first part of the year succeeding that in which the events occurred. The returns to be made to the secretary of the state board of health, although the law provides that they shall be made on or before the first Monday in March, are not all received before the middle or last of April, and sometimes not before the second or third week in May.

It then requires several months of continuous labor to examine many hundreds of pages of large folio manuscript returns, and cull therefrom each separate fact in relation to each of the events of birth, marriage and death, and classify the same and put in tabular order, in their various relations, with comments and conclusions in regard to the results.

This work, it will be apparent, could not be accomplished in time to go into the report of the state board of health, made annually to the General Assembly at the May session.

The report of the secretary of the board, therefore, in any year, can only include the report upon the vital statistics of the State for the year preceeding that for which the remaining part of the report is

made. And it is very properly so included, as a part of the work of the secretary during the year for which the report is made.

As in previous years, a good deal of attention has been given by the secretary to the matter of obtaining accurate and complete returns of births, marriages and deaths, and all the facts in relation to them.

Town councils and town clerks have been appealed to, in relation to the requirements of the statutes, the value of complete and reliable vital statistics, and their duties and powers in regard to the accomplishment of the most desirable results.

The following circular, in relation to the foregoing suggestions, was sent to all the town councils in the State :

### CIRCULAR P.

*To the members of the Town Council :*

GENTLEMEN — You are well aware of the great importance of correct and complete registration of births, marriages and deaths, in their relation to various social and legal rights. Questions of inheritance and entailment of estates, annuities and pensions are absolutely dependent on *correct* records of each of these events.

The Town Councils and Courts of Probate of the several towns, are the legal custodians of the rights and immunities of *all* the residents of those towns.

As honest and impartial custodians and conservators of the rights and privileges of *every* resident, no reasonable effort should be neglected by these officials to secure to each and every one all the rights and expectations which the law provides.

The law *does provide*, and the citizens of the State *do expect*, that a faithful and true record of *every* birth, marriage and death, in their own and other families, will be entered in a lawful manner in the record books of vital registration in every town.

The Statutes prescribe the methods, and to the town and city councils and town clerks is assigned the duty of carrying the provisions into effect.

These remarks are made because it seems evident that there are some towns in the State where proper care is *not taken* to secure complete, and, therefore, reliable returns of the events in question.

The evidence appertains principally to the events of death.

Taking a period of *ten years*, past, there is one town which has reported an average annual death rate of about eleven in each thousand of the population, while the towns immediately adjoining, and others nearest in distance, report a death rate from above fourteen to over seventeen in each thousand. The town that reports the small death rate has a considerably larger and more compact population than those reporting a larger death rate, and the sanitary conditions of the town are, at the best, no better than in the other towns.

There are other towns which show too small an average annual death rate for a series of years, to confirm full confidence in the completeness of the returns.

It may be taken as a rule, that any town having a compact population, in the whole, or in sections by villages, reporting an average death rate of less than thirteen in each thousand of the population, during a period of several years, fails to return a full report.

Another evidence of non-compliance with the law is found in the return of death with the statement that the cause of death is not known.

In Providence county towns the proportion of decedents reported to the State Registrar as having died, in 1881, from "cause unknown" was one in every seven and three-tenths. In Washington county the proportion was one in every six and five-tenths. In Bristol county the proportion was one in every two hundred and four, and in Providence city it was one in every one hundred and forty-three.

Now these great disproportions cannot occur where equal care is taken. The reason why the *cause* of death is sometimes not given, is because the returns of death are not made to the town clerk *before the burial or removal of the deceased person*, according to law (see Public Statutes, Chapter 85, Section 8), but sometime afterwards, when some member of the family states what he or she can remember of the circumstances, and as only known facts are taken, and the *exact* cause of death is indistinct in the recollection, and there is no physician's certificate, the cause of death is reported "unknown."

Where the law is *properly enforced* the returns with cause of death unknown are quite infrequent.

While the State Registrar is earnestly desirous of having the State of Rhode Island the leading State in the Union, in regard to the completeness of its vital statistics in relation to their legal aspects, he is also equally anxious, as Secretary of the State Board of Health, to have the statistics complete for the purpose of study in their sanitary aspect.

The lack of as full statement as possible of the *causes* of death, are not only stumbling blocks in the way of sanitary study, but are sources of regret and mortification to the Registrar, when incorporated and presented to the public in the annual reports.

It is perhaps proper to say here, that the annual Registration Reports of Rhode Island, for the last three years, have been sent to every State and Territorial library in the national commonwealth, to the Registrars General of each of the Canadian Provinces, and of England, Scotland and Ireland, and the national libraries of France, Holland, Germany, Austria, Italy and Hungary. Warm commendations have been received from various sources, State, National and Provincial, and autograph letters of same kind from the Ministers of State of the Kingdom of Italy and Austrian Hungary.

It is then a matter of pride for the State, as well as the State Registrar, to show the report of vital statistics as clean and complete as possible.

In order to accomplish the purpose of ascertaining the exact number, and the facts appertaining to every birth, marriage and death occurring in any town, it is quite important that the town clerks of the several towns should be responsible for the faithful performance of the work.

If then the town council of any town, at the first meeting in January, takes away the responsibility from the town clerk and appoints another person as allowed by law, (see Public Statutes, Chapter 85, Section 10) it is quite necessary that the appointment should be made with great care and discretion.

The person so appointed should be well known as intelligent, accurate and conscientious in the discharge of any duty with which he is intrusted.

If the duty of canvassing the town in January for births and deaths be intrusted to the canvasser for the school and militia census, it is far better to make the compensation for collecting vital statistics so much *per capita*, than to let out the work to the lowest bidder for the lowest compensation in gross.

It will serve to lessen the temptation to neglect, in a house to house visitation, some households not convenient to reach, in sparsely settled neighborhoods.

But to secure complete collection of the events of death, in any town or city, it is *absolutely* necessary that the returns of death be made by the person having charge of the funeral, whether "undertaker or *other person*," to the town clerk **BEFORE THE BURIAL** or removal of the deceased body out of the town where the death occurred.

It is for the town and city councils, to pass and *enforce* such municipal ordinances, as will fully secure compliance with the Public Statutes in regard to the correct and complete returns of deaths.

To do this, will need a town ordinance, requiring permission of the town or city clerk, or such persons as the town council may designate or appoint, who shall give the undertaker or person having charge of the funeral, when the return of the death and *cause* of death has been presented, a blank (to be furnished by the State), filled out by the town clerk or appointee, giving permission for the burial or removal of the deceased.

It is said that criminal practices have occurred in the towns of Rhode Island, because of the laxity of the town regulations in relation to the disposal of the dead. That is, parties have come into the State from other States, or into towns from other towns, (from States and towns where permits for the burial or removal of the dead are required) bringing a person said to be an invalid or insane. The invalid is sometimes never seen except by the parties having charge, or if very infrequently seen, is only seen in charge of the keeper or nurse. After some weeks or months, the so called invalid or insane person dies or is said to have died, persons come from a distance and remove the body, and there is no town ordinance requiring them to give an account, or return of death except such as they are disposed to give, if any. In such cases, the individual, weak in body, or mind, or both, may have suffered gross injustice and cruelty, or death may have been hastened, or even caused by means to produce the result, and the perpetrators, on account of looseness and neglect in the enforcement of law, escape all investigation and all punishment for their wicked misdeeds.

Such acts ought not to be allowed in an enlightened community.

Then again there are criminal acts sometimes perpetrated by corrupt and vicious residents of the towns, which are never inquired into, because the circumstances attending death are not reported at time of death, and the average citizen is apathetic and averse to spending time and incurring fatigue and perhaps ill will, without official authority.

The dangers alluded to, can be avoided, or criminal acts resulting in death be investigated and punished, if a permit for burial or removal of the dead be required in the towns, and *no permission granted* unless the return of death has been properly made with the cause stated, and all other facts given.

It is hoped and believed, that every town council in the State, will give the

matter deliberate consideration, and adopt an ordinance or ordinances, by which the desired results in the interests of public health and humanity may be obtained.

Some towns have already made such provision, and are reaping beneficial results.

I append herewith a draft of an ordinance furnished to several towns, which may be adopted in any others, or at least serve to suggest forms, which to other town councils may seem to more fully accomplish the desired purposes:

#### TOWN ORDINANCE.

It is ordained by the town council of the town of \_\_\_\_\_ as follows:

"SEC. 1. Whenever any death shall occur in the town of \_\_\_\_\_ it shall be the duty of the *undertaker*, or the *person who has charge* of the burial or removal of the body of the decedent to obtain BEFORE BURIAL OR REMOVAL of the same, the physician's certificate (if a physician was in attendance) of the name, date and cause of death; and said physician shall exercise due courtesy and diligence in furnishing said certificate; and if no physician was in attendance, then to obtain from such sources as shall seem most reliable, the cause of death, and with the same, all the facts required by law in the Public Statutes (Chapter 85, Section 3) as shown in the blank returns of death, and make or present the said returns to the town clerk of the said town."

"SEC. 2. It shall be the duty of the town clerk upon the presentation or return of a death in accordance with law, and to his satisfaction, to issue to said undertaker or other person, a permit or certificate of permission to bury, entomb, or remove the body of said deceased person without the limits of the town."

"SEC. 3. Any person engaged or concerned in the burial, entombment or removal from the town, of the body of a deceased person without a permit, or *knowingly* violating any of the provisions of the preceding sections, shall be fined not less than \_\_\_\_\_ dollars nor more than twenty dollars."

SEC. 4. This ordinance shall go into effect on the first day of \_\_\_\_\_ 1883.

It will be observed, that a minimum fine of \_\_\_\_\_ dollars is provided in Section 3, for *knowingly* violating the ordinance. It has been very well settled that any State or municipal law for misdemeanors, is likely to remain a dead letter, when no specific minimum penalty is provided. Of course the word "*knowingly*" will exonerate the innocent.

The State Registrar will furnish all blanks necessary to carry out the provisions of an ordinance like the above, and will also furnish hand bills for posting in public places a notice of the enactment of the above ordinance.

In large towns where the town clerk's office is a long distance from some sections of the town, members of the town council, or the trustees or clerks of school districts might be appointed to act in the place of the town clerk, having blank permits signed by the town clerk, on hand.

It will be seen that the ordinances drafted above, are entirely in consonance with Statute law, and are needed to secure better compliance with the law, and

consequently more complete returns of all the events of death, and circumstances connected therewith.

Hoping the preceding suggestions will meet your kind approval, I remain with great respect,

Yours very truly,

CHAS. H. FISHER,

*State Registrar of Vital Statistics and Secretary of the State Board of Health.*

PROVIDENCE, December 26, 1882.

There are a number of towns in the State, that have an ordinance in force, either similar, or exactly like the draft in the preceding circular, and the results of compliance with the same by undertakers and other persons having charge of funerals, have been very satisfactory.

The fact however, that there are other towns in which such an ordinance has no existence, and the citizens of those towns having no knowledge of the existence of such a law in towns where it is enforced, has resulted in some instances in very considerable inconvenience.

For instance, a person having deceased in a town in which no ordinance requiring burial permits existed, and neither the undertaker nor any other person concerned in the removal of the body of the decedent, having a knowledge of such an ordinance in force in the town to which the body of the deceased was to be taken for burial or entombment, and therefore, unprovided with a permit, the cortege accompanying such deceased body, might be put to considerable delay and inconvenience in the procurement of such permit.

The remedy would be, the enactment by the General Assembly, of a law making the obtainment of a permit for the burial, entombment or removal of the body of a deceased person, obligatory throughout the State. Uniformity of action would thereby be given to the operation of the law in all the towns, and all the inconvenience resulting from the difference of ordinances in the different towns, in relation to the disposal of deceased bodies, would be obviated, and the objects sought by the requirement of burial permits, be more fully accomplished.

In order to further secure an interest on the part of town clerks, in the best accomplishment of correct and complete collection of returns, and that they might more urgently impress upon the canvassers the necessity of rightly understanding their duties, and the equal necessity of the faithful performance of the same, a circular substantially

like the following has been forwarded annually in the month of December.

### CIRCULAR Q.

OFFICE OF STATE REGISTRAR,  
PROVIDENCE, December—

*To the Town Clerk of the Town of—*

DEAR SIR: The State Registrar desires to call your attention again to the great need of securing perfectly reliable returns of the births, marriages and deaths, that have occurred in your town during the year just now closing. Upon you rests largely the responsibility of securing such desirable results. It has been and is known, that some of the births and deaths which have occurred in the State, during past years, are not found recorded in the town records of the towns in which they occurred.

Among other causes of such failure, the most prominent is the removal of the families in which such births and deaths occur, out of the town in which they occurred, before the collector of returns of births and deaths canvasses the town for them. This defect in regard to birth can be greatly remedied by a careful inquiry on the part of every collector of returns in regard to every child of one year old and less, found, *and to be found*, in the town which he is canvassing. When the collector finds a child whose birth occurred in some other town than the one he is canvassing, he should make the same inquiries as in other cases, and record on same blank returns; the said returns to be put in the hands of the town clerk as in other cases, and recorded by him in the town record, the same as of those whose births which occurred in the town, with the exception of *stating the town where the birth occurred*, and the State, if occurring in another State.

The State Registrar will attend to the separation of those born in the town where the canvass is made from those born in other towns.

After the town clerk has copied the town record of births on the large registration returns, and forwarded the same to the Secretary of the State Board of Health, or State Registrar, he should then send the *collectors* small returns of births that have occurred in other towns, to the town clerks of the towns where the births occurred.

The idea is, that the losses and gains in number in the different towns will thereby be best equalized, and the whole number of births in the State more fully ascertained.

The same idea will hold good, not only as between towns, but also as between States. The children born in other States during the year preceding the canvass and found in this State at the time of the canvass, will be about the same in number as of those born in this State and removed to another State before the canvass is made.

All children then, found in any town, whose birth occurred during the preceding year, will be enrolled in the town record of births of the town where residing at the time the canvass is made in January, and be forwarded to the State Registrar the same as those born in the town.

The collector should always be instructed to obtain returns of *all* deaths, which may come to his knowledge, whether previously reported to the town clerk or

not, and if he obtains information and makes returns of deaths that occurred in other towns, and in families removed to and residing in the town which he is canvassing, at the time the returns are collected, the said returns should be recorded in the town where collected, and then transmitted to the town in which the death occurred, as in the case of births. The fees will be the same as in the ordinary returns.

Physician's certificate of cause of death should always be obtained when possible.

The necessity of exercising great diligence in obtaining correct information in regard to the vital statistics of the towns, should be strongly impressed on the minds of canvassers.

The registration returns of births, marriages and deaths which occurred in the several towns of the State, during the past year, and returnable to this office, should have the returns of each class by itself, as heretofore, that is, the births, marriages and deaths on separate blanks, and the sheets *stitched*, or otherwise fastened together in regular order as they come in the quire, and the name of the class, whether births, marriages or deaths, and name of the town from which they are sent, should be written on the first outside page.

Yours respectfully,

CHAS. H. FISHER,

*State Registrar.*

Physicians have also been appealed to, in relation to returns of death, and earnestly desired to forward to the State Registrar returns of deaths occurring in their practice, when their certificate has not been called for within ten days after death, by the undertaker or some other person for the purpose of reporting to the town clerk. The following blank, printed on a postal card, and directed to the Secretary of the State Board of Health, has been furnished to physicians for that purpose.

## RETURN OF A DEATH.

PHYSICIANS CERTIFICATE.

*In the Town of*..... *R. I.*  
 1. Name? .....  
 2. Date of Death? ..... 188.... Age?.....  
 3. Disease? Primary?.....  
 4. " Secondary?.....  
 5. Immediate Cause of Death?.....  
 6. Sanitary Surroundings: Good?.....Bad?.....Average?.....  
 7. Duration of Disease? Primary.....Secondary.....  
 .....*Physician.*

N. B. — At No. 2, probable age, if not known exactly. At No. 5, state whether from exhaustion, paralysis, hemorrhage, suffocation or what. At No. 6, state yes or no to the questions. For out doors make sign, + over reply. For out and in both make sign, =

It is not probable, that the request made to physicians to make report to the State Registrar of such deaths and required statement of facts connected therewith as were not otherwise reported according to law, has been very fully complied with. There are however a considerable number of deaths returned by physicians every year, but they are also found on the returns of the town clerk for the same year with very few exceptions.

#### MARRIAGES.

It is believed that the returns of marriages solemnized in the State, are almost, if not entirely, complete. Clergymen with scarcely an exception, are disposed to fully comply with the law in all respects. During the year, some misunderstanding of the large amendments made to the marriage law by the General Assembly in 1881, was the cause of a few illegal marriages or failures of accomplishing legal marriages. These, so far as known, have all had the ceremony re-performed, with a full compliance with all the requirements of the Statutes.

Other amendments have since been enacted by the General Assembly, modifying the requirements made of minors intending marriage, and adding a penalty for misrepresentation of essential facts in the statements made to town clerks, when applying for a certificate showing that the intentions of marriage have been duly recorded.

These amendments have necessitated the issuance of a circular in amendment of "Circular K," to clergymen and town and city clerks, whose duties have been modified thereby. The new circular will read as follows :

#### CIRCULAR R.

##### OFFICE OF STATE REGISTRAR OF VITAL STATISTICS.

*Dear Sir :*

Recent changes made in the marriage laws of Rhode Island by amendment of Chap. 163, of the Public Statutes, call for a revision of Circular K., issued in June, 1881.

The following rules will have reference to the duties of clergymen and town or city clerks, or city registrar, and are in conformity with the present status of the marriage law :

1. Persons may marry within the degrees of consanguinity heretofore allowed by law.

2. The marriage of idiots, lunatics and of persons having a husband or wife living, is unlawful and absolutely void.

3. There is no legal bar to the intermarriage of whites and persons of color.

4. Any ordained minister or elder of any religious denomination, or minister of any society professing to meet for religious purposes and incorporated and sustaining a minister publicly ordained, who shall be *domiciled* in this State, and either Justice of the Supreme Court, may join persons in marriage in any town in the State; also wardens in the town of New Shoreham. It will be seen that clergymen from other States *cannot solemnize marriages* in Rhode Island.

5. No minister, elder, magistrate or warden shall join persons in marriage, unless such persons, if residents of this State, shall first present a certificate properly executed and signed by the town or city clerk or city registrar of the town or city in which *each of such persons shall respectively reside*, and if not residents of this State, then from the town or city clerk or registrar of the town or city in which the marriage shall be solemnized, to the effect that the said town or city clerk or registrar, has duly recorded the *intention* of marriage between the parties named in the certificate, according to law; and the certificate may also bear the signatures of the Groom and Bride and witness thereto.

6. No marriage shall be solemnized if lawful objection is made thereto, until such lawful objection is removed.

7. The solemnization of marriage shall be in the presence of two witnesses at least, besides the minister or other person officiating, whose signatures shall be appended to the certificate of marriage.

8. Marriages solemnized in accordance with the forms, rites and ceremonies of the various religious denominations respectively, are valid if otherwise in accordance with law.

9. Every person authorized to join persons in marriage shall certify the time when and the place where the marriage shall have been solemnized, and shall on or before the second Monday of every month, return the certificate of every marriage solemnized by him during the last preceding month, to the town or city clerk or registrar of the town or city in which such rite shall have been performed.

10. Upon application, the town or city clerk or city registrar of the town or city in which each or both of the persons intending marriage shall reside, shall fill out a *blank return of marriage* in the form provided by the Secretary of the State Board of Health, and shall certify on the reversed side, in the blank provided, that the *intention* of marriage between the parties named as groom and bride has been duly recorded in his office.

11. No town or city clerk or city registrar shall issue any such certificate to any minor or person under control of a parent or guardian, unless the consent in writing of the parent or guardian of such person shall have been first obtained thereto, provided, however, such certificate may be issued to a female over eighteen years of age, who has no parent or guardian living in the United States. The legal minority of both sexes terminates at the age of twenty-one.

12. The town or city clerk or city registrar, shall, after stating the No. of marriage, whether 1st, 2d, or 3d, etc., at No. 14, on the return of marriage filled out by him, also state on the same line whether either the groom or bride or both has or have been divorced, by writing the word—divorced, or the contraction—div., closely following the No. of marriage.

13. The town or city clerk or city registrar shall obtain the facts in relation

to divorce, and to minority, and shall have power of administering an oath relative thereto, and may require the signatures of the groom and bride, one or both at his discretion, at the bottom of the return which he will fill out and certify to. And any person who shall willfully give any false information for the purpose of obtaining the certificate hereinbefore described, shall be fined not exceeding twenty dollars. But if the signatures of the groom and bride are not required by him, they must be required previous to marriage by the person performing the ceremony.

Respectfully,

CHAS. H. FISHER,

*State Registrar and Sec. of the State Board of Health.*

The amendments to the marriage laws have not been such as to need any change in the forms of blanks heretofore used, and they remain as presented in the Fourth Annual Report of the Board.

## REPORT OF MOST PREVALENT ACUTE DISEASES.

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The experience of the Secretary in regard to the attainment of full and complete monthly reports of the prevailing acute diseases in the several towns of the State, with the amount of prevalence, degree of severity and ratio of mortality of each disease, together with the meteorological conditions prevailing at the same time, has not been as satisfactory as was at the beginning hoped for and desired.

It was hoped that these monthly reports would enable the Secretary to study the occurrence of different diseases in different localities, in connection not only with season, but also in connection with prevailing winds, humidity of air and soil, and the natural features of the localities as to outlines of surface, water courses and ponds, and geological formation of surface and substructure.

In the reports of the Secretary heretofore published, may be found topographical descriptions of a large part of the State, including nearly all of the towns.

These descriptions of the earth's surface and substrata obtained from correspondents in the different towns, are satisfactory so far as they go, and will be of value hereafter to some extent, when the reports of the prevalence of different diseases and concomitants of the same in the different localities, have accumulated for a series of ten years or so, and the endeavor is made to ascertain the cause and natural habitat of certain diseases, by the observations made and deductions therefrom during that term of years.

In regard to the meteorological conditions prevailing at the time of the occurrence of reported diseases, it was found during the first year of attempted obtainment of them, that they, after a few months, gradually became less and less a part of the monthly reports. It was also found, however, as might naturally be expected, that the conditions of the atmosphere as reported monthly from the towns, were quite uniform during the same days and weeks throughout the State.

The disinclination of the larger part of the medical correspondents of the Board to include meteorological conditions in their reports, led to the abandonment, in the blanks furnished for monthly returns, of columns or spaces for that purpose.

This plan was the more readily adopted from the fact that the meteorological conditions were accurately observed and recorded daily in Providence and Newport, and that such records were accessible to the Secretary, or would be kindly furnished in tabular form by the officer in charge of either station when requested.

To simplify the monthly returns, so as to give the medical correspondents the least possible trouble or inconvenience, the following blank form printed on a postal card, has been made use of during the last three years.

RETURN OF DISEASES in.....  
and vicinity, during the month of..... 188.....

Any disease prevalent, not on the list may be added in writing. In the column order of prevalence the figure 1 will signify the disease affecting the largest number, figure 2 next largest, and so on, fig 0, that no cases are known. In column of severity or type, s will signify severe, a, average, and m, mild. In column of general sickness, c will signify an average with other years; figures with sign x attached so much per cent. increase; with sign —, so much decrease. Please add name or initials, and send at end of each month.		Order of prevalence.	Form or Type.	General Sickness.
Bronchitis.....				
Catarrhal Influenza				
Cerebritis.....				
Cholera Infantum..				
Cholera Morbus...				
Croup Membranous				
Croup Spasmodic..				
Diphtheria. ....				
Diarrhea.....				
Dysentery.....				
Fever Typhoid....				
Fever Intermittent				
Meningitis Cerebral				
Measles.....				
Pharyngitis.....				
Pneumonia.....				
Plenrisy.....				
Rheumatism.....				
Scarlet Fever....				
.....				
.....				
.....				
.....				

M. D.

In the following pages will be found summaries of the monthly reports made during the year 1882 :

*Summary of Reports of the most prevalent acute diseases in the several towns during*

JANUARY, 1882.

NAMES.		Acute Diseases	Of Brain.	Of Nasal Passages.	Of Throat.	Of Bronchiae.	Of Lungs.	Croup.	Diphtheria.	Dysentery and Diarrhea.	Erysipelas.	Whooping Cough.	Measles.	Rheumatism.	Scarlatina.	Typhoid Fever.
Barrington.....	1a.	1a.			2a.	1a.	1a.	4a.	4a.					3m.		
Warren.....	2m.	2m.			3m.	1a.	1a.		4a.					1a.		
Coventry.....	3a.	3a.			2a.				4a.							
East Greenwich.....	1a.	1a.			3a.	2a.	2a.		5a.		2a.					3m.
Warwick.....	1a.	1a.			3a.	1m.	2a.							4a.		
Little Compton.....					2a.	1a.	2a.					4a.				
Middleton.....	1a.	1a.			2a.	3a.	3a.							5m.		
Portsmouth.....	1a.	1a.			3m.	5a.	2m.							4m.		
Tiverton.....	1a.	1a.			2m.	4m.	2m.							5a.		
Newport City.....	1m.	1m.			3m.	3m.	3m.							4m.		
Cranston.....	2a.	2a.			3m.	1a.	4m.	5a.						5a.		
Foster.....	1s.	1s.				2m.	3m.									
Johnston.....	1a.	1a.			2a.	4m.	3a.	6a.	7a.			8a.			9m.	
Lincoln.....	3a.	3a.			4m.	2a.	1a.	5a.								
Pawtucket.....	2a.	2a.	6a.		3a.	3a.	1m.									
Gloucester.....	1a.	1a.			1a.	3a.	4m.		5a.					3a.		
Woonsocket.....	1s.	1s.			5m.	2m.	3m.	9a.					2a.	4s.	7a.	6a.
Providence City.....	4a.	4a.	6a.		3m.	1a.	2a.	9a.	5a.	10a.		7a.	8m.	8a.	11m.	12a.
Hopkinton.....	4a.	4a.			1a.	2a.	6m.	3s.		7m.				5a.		
North Kingstown.....	1a.	1a.			2a.	3m.	4m.		5a.							
Westerly.....	8a.	8a.				3a.	4a.	7a.	2m.					5m.	1m.	6a.

Figure 1, in the different columns of the Table, indicates the disease affecting the largest number of persons. Fig. 2, the next largest number, and so on. The letters following the figures denote the degree of severity; s, signifying severe, a, average, and m, mild. No returns from towns not on the list.

## Summary of Reports of the most prevalent acute diseases in the several towns during

FEBRUARY, 1882.

TOWNS.		Acute Diseases	Of Brain.	Of Nasal Passages.	Of Throat.	Of Bronchie.	Of Lungs.	Croup.	Diphtheria.	Dysentery and Diarrhea.	Erysipelas.	Measles.	Rheumatism.	Scarlatina.	Typhoid Fever.	Whooping Cough.
Warren.	.....	.....	.....	1m.	3m.	2m.	4a.	5m.	.....	.....	.....	.....	6a.	.....	.....	.....
Coxsack.	.....	.....	.....	2a.	4m.	1a.	3a.	2a.	7a.	.....	6a.	.....	8a.	8a.	.....	.....
East Greenwich.	.....	.....	.....	1a.	2m.	.....	.....	.....	6m.	.....	5m.	.....	4a.	5a.	.....	.....
West Greenwich.	.....	.....	.....	2a.	4m.	1m.	5a.	5a.	7m.	.....	.....	.....	4m.	6m.	.....	.....
Warwick.	.....	.....	.....	2a.	3m.	4m.	1m.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Little Compton.	.....	.....	.....	4a.	3m.	1a.	2m.	.....	.....	.....	.....	.....	1a.	.....	.....	.....
Portsmouth.	.....	.....	.....	1a.	2m.	3a.	4a.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tiverton.	.....	.....	.....	2m.	2m.	2a.	4m.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Newport City.	.....	.....	.....	1m.	3a.	3m.	2m.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cranston.	.....	.....	.....	3a.	1m.	2m.	4m.	.....	.....	.....	.....	.....	4m.	5m.	.....	.....
Cumberland.	.....	.....	.....	2a.	4m.	1a.	3m.	.....	.....	.....	.....	.....	6m.	5a.	.....	.....
East Providence.	.....	.....	.....	3a.	2m.	1m.	4m.	6a.	.....	.....	.....	.....	7a.	.....	.....	.....
Johnston.	.....	.....	.....	1a.	2m.	5m.	4a.	.....	.....	.....	.....	2m.	3m.	.....	.....	.....
Glocester.	.....	.....	.....	.....	5a.	1s.	4m.	5a.	5a.	4m.	.....	.....	.....	.....	2a.	.....
Foster.	.....	.....	.....	3a.	4a.	2a.	1a.	.....	.....	.....	5a.	.....	6a.	7m.	4m.	.....
Lincoln.	.....	.....	.....	1m.	3a.	4m.	2m.	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Providence.	.....	.....	.....	1m.	3a.	2m.	4m.	5a.	.....	.....	.....	.....	3a.	.....	.....	.....
North Smithfield.	.....	.....	.....	1a.	3a.	2a.	3m.	4a.	.....	.....	.....	.....	5a.	.....	.....	.....
Pawtucket.	.....	.....	.....	1a.	2m.	3m.	5a.	6m.	.....	.....	.....	.....	4a.	.....	.....	.....
Saltwater.	.....	.....	.....	1m.	5m.	3m.	4a.	7a.	.....	.....	.....	.....	6m.	.....	.....	.....
Woonsocket.	.....	.....	.....	2a.	4a.	1a.	3a.	7m.	.....	.....	.....	.....	5m.	6m.	.....	.....
Providence City.	.....	.....	.....	1a.	2m.	3s.	4a.	5m.	8m.	6a.	.....	.....	.....	.....	7a.	.....
Charlestown.	.....	.....	.....	3m.	1m.	2m.	4a.	5a.	.....	.....	.....	.....	6a.	7m.	.....	.....
Exeter.	.....	.....	.....	2m.	1a.	3a.	5m.	4a.	.....	.....	.....	.....	3a.	.....	.....	.....
Hopkinton.	.....	.....	.....	4m.	2s.	1a.	8a.	5a.	.....	6m.	.....	.....	3a.	.....	.....	.....
North Kingstown.	.....	.....	.....	2m.	5a.	4a.	3a.	1m.	.....	.....	.....	.....	2a.	.....	.....	.....
Richmond.	.....	.....	.....	4m.	3m.	2a.	1a.	5m.	.....	.....	.....	.....	4a.	.....	.....	.....
Westerly.	.....	.....	.....	7a.	6a.	3a.	2a.	8a.	5a.	.....	.....	.....	1m.	4m.	.....	.....

Figure 1, in the different columns of the Table, indicates the disease affecting the largest number of persons, Fig. 2, the next largest number, and so on. The letters following the figures denote the degree of severity; s, signifying severe, a, average, and m, mild. No. returns from towns not on the list.

*Summary of Reports of the most prevalent acute diseases in the several towns during*

MARCH, 1882.

TOWNS.		Acute Diseases	Of Brain.	Of Nasal Passages.	Of Throat.	Of Bronchiae.	Of Lungs.	Croup.	Diphtheria.	Dysentery and Diarrhoea.	Erysipelas.	Hoopling Cough.	Rheumatism.	Scarlatina.	Typhoid Fever.
Bristol.....	1a.	.....	.....	3a.	2a.	1m.	.....	4m.	.....	.....	.....	.....	6m.	.....	5m.
Warren.....	1a.	.....	.....	1a.	2m.	3m.	4a.	6m.	.....	.....	.....	.....	5a.	.....	.....
Coventry.....	3m.	.....	.....	3m.	2m.	1a.	5s.	4m.	4s.	.....	6m.	.....	6m.	7m.	.....
East Greenwich.....	1a.	.....	.....	1a.	3a.	.....	3m.	2a.	.....	.....	4a.	5m.	.....	3m.	.....
West Greenwich.....	1a.	.....	.....	1a.	2a.	3m.	4m.	6a.	7m.	9m.	.....	.....	5m.	8m.	.....
Warwick.....	1a.	.....	.....	1a.	3a.	4m.	2m.	.....	.....	.....	.....	.....	2m.	.....	.....
Little Compton.....	1a.	.....	.....	3a.	1a.	3m.	4m.	.....	.....	.....	.....	.....	1m.	.....	.....
Tiverton.....	1a.	.....	5a.	1a.	2m.	3m.	1a.	.....	.....	.....	.....	.....	.....	.....	.....
Cumberland.....	1a.	.....	.....	3a.	3a.	1a.	4a.	.....	.....	.....	.....	.....	.....	.....	.....
Glooucester.....	2a.	.....	.....	2a.	2a.	1a.	4a.	.....	.....	.....	.....	.....	.....	.....	.....
Johnston.....	1a.	.....	5a.	.....	2a.	3a.	2m.	.....	.....	.....	.....	.....	.....	.....	.....
Foster.....	1a.	.....	.....	1a.	3a.	4a.	2m.	.....	.....	.....	.....	.....	5m.	6m.	.....
Lincoln.....	1s.	.....	.....	1a.	2m.	2m.	3s.	5m.	.....	.....	.....	.....	6m.	.....	5m.
Lincoln.....	1a.	.....	.....	1a.	3m.	2m.	4m.	.....	.....	.....	.....	.....	6m.	.....	.....
Pawtucket.....	1m.	.....	.....	1m.	4a.	3m.	2m.	5a.	8m.	.....	.....	.....	6a.	7m.	.....
Scituate.....	2a.	.....	.....	2a.	4a.	3m.	4a.	.....	.....	.....	.....	.....	5m.	.....	.....
Providence City.....	1a.	.....	.....	1a.	1m.	3m.	2a.	5m.	.....	6m.	.....	9a.	8a.	10m.	11a.
Providence City.....	2a.	.....	7a.	2a.	4a.	3a.	4m.	.....	.....	6m.	.....	.....	6m.	.....	.....
Exeter.....	1a.	.....	.....	1a.	1a.	3a.	.....	5m.	.....	.....	.....	.....	.....	.....	.....
Exeter.....	2m.	.....	.....	2a.	2a.	2m.	.....	3a.	5m.	6m.	.....	.....	8m.	.....	.....
Hopkinton.....	1a.	.....	.....	1a.	3s.	2s.	7a.	4a.	.....	.....	.....	.....	6a.	.....	.....
North Kingstown.....	1a.	.....	.....	1a.	3a.	2a.	4a.	5m.	.....	.....	.....	.....	6a.	.....	.....
Richmond.....	1a.	.....	.....	2a.	1a.	4a.	3m.	5a.	.....	.....	.....	.....	5m.	8m.	.....
Westerly.....	1a.	.....	.....	1a.	2m.	4m.	3m.	.....	7m.	6m.	.....	.....	5m.	.....	.....
Woonsocket.....	3a.	.....	.....	3a.	2a.	1s.	4a.	.....	.....	.....	.....	.....	5a.	.....	.....

Figure 1, in the different columns of the Table, indicates the disease affecting the largest number of persons. Figure 2, the next largest number, and so on. The letters following the figures denote the degree of severity; s, signifying severe, a, average, and m, mild. No returns from towns not on the list.

## Summary of Reports of the most prevalent acute diseases in the several towns during

APRIL, 1882.

TOWNS.		Acute Diseases	Of Brain.	Of Nasal Passages.	Of Throat.	Of Bronchiae.	Of Lungs.	Croup.	Diphtheria.	Dysentery and Diarrhoea.	Erysipelas.	Whooping Cough.	Rheumatism.	Scarlatina.	Typhoid Fever.	Malarial Fever.
Bristol.....	1m.		3m.		2m.	4a.							5m.			
Barrington.....	1m.		2a.		3m.	4a.							5a.			
Warren.....	3m.		1m.		2m.	4a.										
Coventry.....	1a.		2m.		4m.	2s.		7m.	5m.			3a.	6m.	8m.		
East Greenwich.....	1m.		3m.		2m.	4m.		5m.					5m.			
Warwick.....	1a.		4a.		3m.	2m.		6m.					5m.			
Little Compton.....	2m.		1a.		4m.	3m.							5m.			
Middletown.....	1a.		2m.		4m.	3m.										
Portsmouth.....	2a.		4m.		4a.	3m.							5m.			
Tiverton.....	3s.		4m.		2s.	3m.			5m.			1m.	5a.			
Newport City.....	2m.		1m.		4m.	3m.							5a.	7m.		
Cranston.....	1a.		4m.		2a.	3m.		3a.					6m.			
Cumberland.....	1a.		4m.		1m.	2m.							3m.			
Gloster.....	1a.		4m.		3m.	2m.		5m.	7m.				6m.	8m.	9a.	
Johnston.....	1a.		2m.		3m.	2m.							4m.			
Foster.....	1m.		3m.		2m.	5a.		6a.					5a.			
Lincoln.....	3a.		2a.		1a.	4m.			8m.	7m.			4m.			
North Providence.....	1m.		4m.		2a.	3m.							4m.			
North Smithfield.....	1a.		4m.		2a.	3m.		5a.					6a.			
Pawtucket.....	1a.		2m.		2m.	3a.							4a.			
Scituate.....	1a.		3a.		2m.	4a.		5a.					6a.			
Providence City.....	1a.		4m.		2a.	3a.		6a.	9m.		7a.	5a.	3m.	10m.	11a.	
Charlestown.....	1m.		2m.		6a.	4m.		5m.	7m.							
Exeter.....	2a.		3a.		4m.	4m.		4a.	5s.	8m.			7m.			
Hopkinton.....	5s.		1s.		3a.	3m.										
North Kingstown.....	1a.		4m.		2a.	3m.		6m.					7m.			
Richmond.....	2a.		3a.		1m.	5a.		6m.					5m.			
Westerly.....	1m.		2m.		7m.	6a.		4a.					6m.	8m.	9m.	
Woonsocket.....	1a.		4m.		2m.	3m.		3a.	7m.				6m.			

Figure 1, in the different columns of the Table, indicates the disease affecting the largest number of persons. Fig. 2, the next largest number, and so on. The letters following the figures denote the degree of severity: s, signifying severe, a, average, and m, mild. No returns from towns not on the list.

*Summary of Reports of the most prevalent acute diseases in the several towns during*

MAY, 1882.

TOWNS.	Acute Diseases									
	Of Brain.	Of Nasal Passages.	Of Throat.	Of Bronchiae.	Of Lungs.	Croup.	Diphtheria.	Dysentery and Diarrhoea.	Erysipelas.	Hoopling Cough.
Barrington.....	4a.	5m.	2a.	1s.	9m.	8m.	.....	.....	.....	.....
Bristol.....	4m.	5m.	5m.	1s.	3a.	6a.	.....	.....	.....	.....
Warren.....	1m.	4a.	2m.	2a.	3a.	5m.	.....	.....	.....	.....
Coventry.....	.....	.....	.....	1m.	2m.	3m.	.....	.....	.....	.....
East Greenwich.....	1m.	4a.	4a.	2m.	3a.	6m.	.....	.....	.....	.....
West Greenwich.....	1m.	4a.	2m.	2m.	5a.	4a.	7m.	8m.	.....	.....
Warwick.....	1m.	1m.	2m.	6a.	3a.	.....	.....	.....	.....	.....
Janestown.....	1m.	1m.	2m.	4m.	3m.	.....	.....	.....	.....	.....
Little Compton.....	1m.	4m.	4m.	3m.	2m.	.....	.....	.....	.....	.....
Middletown.....	1m.	4m.	2m.	2m.	3m.	.....	.....	.....	.....	.....
Tiverton.....	4m.	1a.	2m.	3m.	2s.	.....	.....	.....	.....	.....
Newport City.....	1m.	4m.	4m.	2m.	3m.	.....	.....	.....	.....	.....
Burrillville.....	3m.	1a.	1a.	2a.	4s.	5m.	5m.	6m.	.....	.....
Cranston.....	1m.	3a.	3a.	2m.	4m.	.....	.....	.....	.....	.....
Cumberland.....	1a.	4a.	4s.	3m.	2m.	.....	.....	.....	.....	.....
Foster.....	1m.	4s.	3m.	2a.	2a.	.....	.....	.....	.....	.....
Gloucester.....	.....	2s.	2m.	1a.	2s.	4m.	.....	.....	.....	.....
Johnston.....	1m.	4m.	4m.	2m.	2a.	5a.	6m.	8m.	.....	.....
Lincoln.....	1m.	1m.	2m.	3a.	4m.	6m.	9m.	8m.	.....	.....
Pawtucket.....	1m.	1m.	2m.	4a.	3m.	.....	.....	.....	.....	.....
Scituate.....	3a.	2a.	2a.	1m.	4m.	5m.	7m.	8m.	.....	.....
Smithfield.....	1m.	3m.	3m.	2m.	5m.	4m.	7m.	7m.	.....	.....
Woonsocket.....	1a.	4a.	3m.	3m.	2m.	.....	.....	.....	.....	.....
Providence City.....	12a.	1m.	2m.	3a.	3a.	.....	11m.	6a.	6m.	.....
Charlestown.....	1m.	2m.	2m.	2a.	6a.	.....	6m.	4m.	5m.	.....
Hopkinton.....	2m.	1s.	1s.	3m.	8m.	4a.	6m.	5a.	.....	.....
North Kingstown.....	1m.	4m.	4m.	3a.	2m.	.....	6m.	5m.	.....	.....
Richmond.....	1m.	1s.	2m.	3a.	6a.	4m.	6m.	5m.	.....	.....
Westerly.....	1m.	2m.	.....	3a.	.....	.....	.....	.....	.....	.....

Figure 1, in the different columns of the Table, indicates the disease affecting the largest number of persons. Figure 2, the next largest number, and so on. The letters following the figures denote the degree of severity; s, signifying severe, a, average, and m, mild. No returns from towns not on the list.

*Summary of Reports of the most prevalent acute diseases in the several towns during*

JUNE, 1882.

TOWNS.	Acute Diseases																
	Of Brain.	Of Nasal Passages.	Of Throat.	Of Bronchic.	Of Lungs.	Croup.	Diphtheria.	Dysentery and Diarrhea.	Erysipelas.	Whooping Cough.	Measles.	Rheumatism.	Scarlatina.	Typhoid Fever.	Malarial Fever.	Cholera Morbus.	Cholera Infantum.
East Greenwich.	.....	4m.	2m.	1m.	3m.	.....	.....	5m.	.....	.....	.....	6m.	.....	.....	.....	7a.	.....
Cranston	.....	.....	2m.	1m.	5a.	6m.	.....	4m.	.....	.....	.....	5a.	.....	.....	3m.	7a.	.....
Cumberland	.....	2a.	3m.	1m.	.....	4m.	.....	4m.	.....	7m.	.....	7m.	.....	.....	8m.	9m.	.....
East Providence	.....	3m.	2m.	1a.	4a.	.....	.....	5m.	6m.	.....	.....	7m.	.....	.....	5m.	9m.	.....
Johnston	.....	.....	2m.	2m.	7a.	3m.	.....	4m.	.....	.....	.....	5m.	.....	.....	4m.	6a.	.....
Foster	.....	4m.	1m.	2m.	.....	3m.	.....	.....	.....	.....	.....	5m.	.....	.....	5m.	6a.	.....
Lincoln	.....	.....	3m.	1m.	2m.	.....	.....	7m.	.....	.....	.....	4m.	.....	.....	5m.	7a.	6a.
Providence City	.....	4m.	3a.	1a.	2m.	.....	9m.	5m.	.....	.....	.....	5m.	6m.	11m.	10a.	7a.	6a.
Hopkinton	.....	4m.	2s.	3a.	.....	.....	.....	1m.	.....	.....	.....	5m.	10m.	9m.	.....	.....	.....
Bristol	.....	5m.	2a.	1s.	3s.	6m.	7m.	8a.	.....	.....	11m.	4a.	10m.	.....	.....	.....	.....
Glocester	.....	6m.	3a.	1s.	2m.	4m.	.....	.....	.....	.....	.....	5m.	.....	7m.	.....	.....	.....
Tiverton	.....	1m.	2m.	4m.	2m.	.....	.....	.....	.....	.....	.....	3m.	.....	.....	.....	.....	.....
Woonsocket	.....	4m.	2m.	1m.	5a.	.....	.....	3s.	.....	.....	.....	6m.	.....	.....	5m.	7a.	8a.
Newport City	.....	.....	3m.	2m.	.....	5m.	.....	1m.	.....	.....	.....	6a.	5m.	.....	.....	4a.	.....
Warwick	.....	4m.	3m.	1m.	2m.	.....	7m.	.....	.....	.....	.....	.....	8m.	9m.	9m.	10a.	.....
Westerly	.....	.....	4m.	2m.	.....	.....	6m.	1m.	.....	.....	.....	.....	7m.	.....	.....	3a.	5a.
Pawtucket	.....	5m.	2m.	1m.	3a.	4m.	.....	.....	.....	.....	.....	7m.	.....	.....	6m.	8a.	9m.

Figure 1, in the different columns of the Table, indicates the disease affecting the largest number of persons. Fig. 2, the next largest number, and so on. The letters following the figures denote the degree of severity; a, average, and m, mild. No returns from towns not on the list.

*Summary of Reports of the most prevalent acute diseases in the several towns during*

JULY, 1882.

TOWNS.		Acute Diseases	Of Brain.	Of Nasal Passages.	Of Throat.	Of Bronchiae.	Of Lungs.	Croup.	Diphtheria.	Dysentery and Diarrhoea.	Erysipelas.	Whooping Cough.	Measles.	Rheumatism.	Scarlatina.	Typhoid Fever.	Cholera Infantum.	Cholera Morbus.	Malarial Fever.
Bristol	8s.	9m.	1a.	2m.	4m.	7m.			5a.					3a.			2a.	3a.	
Warren		4m.	5m.	4m.	3a.				1a.			6m.	7m.	5a.			2a.	3a.	
Coventry		4m.	5m.	4m.	3a.				4m.			3m.	4m.				2a.	3a.	
East Greenwich		3m.	3m.	3m.	2m.				1s.								2a.	3a.	
West Greenwich		3m.	3m.	3m.	2m.				1a.								2a.	3a.	
Warwick	7a.	6m.	5a.	4m.	6m.				1a.								2a.	3a.	
Gloicester		4m.	5a.	4m.	6m.				1a.								2a.	3a.	
Tiverton		4m.	5a.	4m.	6m.				1a.								2a.	3a.	
Cranston		10s.	8a.	6a.	9a.				1s.								2a.	3a.	
Cumberland			8a.	6a.	9a.				1s.								2a.	3a.	
East Providence			4m.	3m.	4m.				1a.								2a.	3a.	
Johnston			4m.	3m.	4m.				5m.								2a.	3a.	
Foster			4m.	3m.	4m.				7m.								2a.	3a.	
Lincoln	8a.		4m.	3m.	4m.				1m.								2a.	3a.	
North Providence			4m.	3m.	4m.				1m.								2a.	3a.	
North Smithfield			4m.	3m.	4m.				1m.								2a.	3a.	
Dartmouth			4m.	3m.	4m.				1m.								2a.	3a.	
Attitash	7a.		4m.	3m.	4m.				1m.								2a.	3a.	
Woonsocket			4m.	3m.	4m.				1m.								2a.	3a.	
Providence City			4m.	3m.	4m.				1m.								2a.	3a.	
Charlestown			4m.	3m.	4m.				1m.								2a.	3a.	
Exeter			4m.	3m.	4m.				1m.								2a.	3a.	
Hopkinton			4m.	3m.	4m.				1m.								2a.	3a.	
North Kingstown			4m.	3m.	4m.				1m.								2a.	3a.	
Richmond			4m.	3m.	4m.				1m.								2a.	3a.	
Westerly	7m.	6a.	5m.	5m.	5m.				9m.					8m.		10m.	3a.	2a.	1s.

Figure 1, in the different columns of the Table, indicates the disease affecting the largest number of persons. Fig. 2, the next largest number, and so on. The letters following the figures denote the degree of severity; s, signifying severe, a, average, and m, mild. No returns from towns not on the list.

*Summary of Reports of the most prevalent acute diseases in the several towns during*

August, 1882.

TOWNS.	Acute Diseases	Of Brain.	Of Nasal Passages.	Of Throat.	Of Bronchic.	Of Lungs.	Diphtheria.	Dysentery and Diarrhea.	Erysipelas.	Whooping Cough.	Measles.	Rheumatism.	Scarlatina.	Typhoid Fever.	Malarial Fever.	Cholera Infantum.	Cholera Morbus.
Bristol	5s.	6m.	4m.	7m.				2a.				8m.				1s.	3s.
Barrington								1m.				2m.				3a.	3m.
Warren								1a.				2m.				4a.	4a.
Coventry							4m.	1m.				1m.				2a.	3m.
East Greenwich		4m.	5m.					1a.								3a.	2a.
Warwick								1m.		4m.				2m.		3m.	4a.
Newport City								1a.		4m.						3m.	
Portsmouth								1m.								3m.	2a.
Tiverton								1m.								3m.	2a.
Cranston	7a.			6a.				5m.				3m.				2m.	3a.
Cumberland								1a.	4m.			2m.			1a.	4a.	5a.
East Providence								1m.				1a.				5m.	3a.
Johnston								1a.		5m.						2a.	3a.
Foster				6m.				1m.				2m.		3m.		2a.	4m.
Glocester				5m.				1a.		3m.		4a.				3m.	2a.
Lincoln	7a.	6m.		5m.				2m.	4m.							3m.	3a.
North Providence								4m.								1a.	3a.
North Smithfield								2m.	6m.							2m.	3a.
Pawtucket	7m.							1a.						4m.		2a.	3a.
Scituate				4m.				1m.				3m.				2m.	
Smithfield								1m.						2s.		4m.	5a.
Woonsocket		3m.	4m.					2s.								1a.	7a.
Providence City	4m.							2a.		3m.			1a.	6m.		1a.	4m.
Charlestown								5m.								2a.	4m.
Exeter				4m.				1m.								5m.	1s.
Hopkinton			6a.	4m.				2s.				3m.		3a.		2m.	3a.
Richmond		7m.		4m.				1m.					1m.			2m.	3a.
South Kingstown								1m.				10m.		12m.		2m.	3a.
Westerly	11m.	6a.	7m.	5a.		8m.	13m.	4a.								2a.	1a.

Figure 1, in the different columns of the Table, indicates the disease affecting the largest number of persons. Fig. 2, the next largest number, and so on. The letters following the figures denote the degree of severity; s, signifying severe, a, average, and m, mild. No returns from towns not on the list.





*Summary of Reports of the most prevalent acute diseases in the several towns during*

NOVEMBER, 1882.

TOWNS.	Acute Diseases.	Of Nasal Passages.	Of Throat.	Of Bronchite.	Of Lungs.	Of Croup.	Diphtheria.	Dysentery and Diarrhea.	Erysipelas.	Whooping Cough.	Measles.	Rheumatism.	Scarlatina.	Typhoid Fever.	Malaria Fever.	Cholera Infantum.	Cholera Morbus.
Bristol	3m.			1m.				4m.				7m.	8m.	5m.	6m.		
Barrington	3a.		2m.	1a.								4m.			3a.		
Warren	6m.		3a.	1a.	5a.			1a.				2a.			4a.		
Coventry	5m.			1a.	7m.	6m.	2m.				6m.	4m.	3m.				
East Greenwich	1m.			2a.					3m.	4a.		5a.			7m.		
Warwick	4a.		2m.	1m.	3m.	5a.	9m.			5a.		6m.					
Little Compton	1m.			2a.	3m.							4m.		5m.			
Portsmouth	3m.			1m.	2m.							4m.		3a.			
Tiverton				1m.	2m.	3m.						4m.		5m.			
Cranston	9m.		6m.	1a.	7m.		2m.	5m.				8a.		1m.			
Cumberland	2m.			1a.	3a.	4a.								5m.			
East Providence	4m.		3m.	2m.	5m.							6m.		1a.			
Johnston	6m.		7m.	5m.	8a.	4a.	9m.	3m.				5m.		1a.			
Foster	1m.		3m.	2m.		4a.						4m.		5s.			
Gloicester	3m.		2m.	1m.	7a.			4a.				8m.		2m.	6m.	9m.	3m.
Labcoln	2a.		5a.	1a.		5a.	6m.					6m.		5m.			
North Providence	3m.		4m.	2m.	3m.							6a.		7m.	8m.		
North Smithfield	1m.		5m.	1a.	2a.	3m.				9m.		3m.		6a.			
Pawtucket	4a.		3m.	1a.	4m.							7m.		4m.			
Scituate	2m.		3m.	1a.	1a.					3a.		3m.		7a.			
Smithfield	2m.		3m.	2m.	4a.	5a.						6m.		1a.			
Woonsocket	1m.		4a.	2m.	3m.	6a.				8a.		9a.	11m.	1a.	10m.		
Providence City	4m.		3m.	3m.	5m.		7m.					2m.					
Charlestown	4m.		4m.	3m.	6m.							5m.					
Exeter	2m.		3m.	1a.	4a.							5m.					
Hopkinton	4m.		3m.	8a.	9a.	8a.		1s.			2s.	5s.	6a.	7m.			
North Kingstown	1m.		4m.	2a.	3m.							1m.			5a.		
Richmond	2m.		3m.	5m.	6m.			4a.				1m.					
South Kingstown	1m.		5m.	2m.	5m.		6m.					3a.		4m.			
Westerly	7m.			1m.									3m.		2m.		

Figure 1, in the different columns of the Table, indicates the disease affecting the largest number of persons. Fig. 2, the next largest number, and so on. The letters following the figures denote the degree of severity; s, signifying severe, a, average, and m, mild. No returns from towns not on the list.

## Summary of Reports of the most prevalent acute diseases in the several towns during

DECEMBER, 1882.

TOWNS.	Acute Diseases		Of Brain.	Of Nasal Passages.	Of Throat.	Of Bronchæ.	Of Lungs.	Croup.	Diphtheria.	Dysentery and Diarrhœa.	Whooping Cough.	Measles.	Rheumatism.	Scarlatina.	Typhoid Fever.	Malarial Fever.
Bristol.....				2a.	3n.	1a.	6a.	5m.	5m.	4a.			6m.			3m.
Barrington.....				2m.	4m.	1a.	7m.	6a.					4m.			3m.
Warren.....				2a.		1a.	6m.	5a.	2a.				5a.			
Coventry.....				7m.		1a.	5m.	5a.	4m.			4m.	5a.	3m.		
East Greenwich.....				2m.		1m.							5a.			
Warwick.....				2m.		1m.		6a.			5a.		5m.		4m.	
Little Compton.....				2m.	3m.	1m.							4a.			
Portsmouth.....				2m.	3m.	1m.							4m.			
Tiverton.....				2a.	4m.	1m.							3a.			
Transton.....				1a.		2a.	3m.	5m.	6m.				4m.		5m.	4m.
Cumberland.....				2m.		1a.		7a.					5m.		1m.	
East Providence.....				3a.		2a.	6a.	7a.					6m.		4m.	
Johnston.....				2m.		1a.	3a.						5m.			
Procter.....				1m.	4a.	2a.	5m.	3m.	6m.		7a.		6m.			
Gloucester.....				4m.	3a.	2a.	1a.			2m.			4m.		6a.	
Lincoln.....			7a.			1a.	2a.	5a.			6a.		5a.		3a.	
North Providence.....				7m.		1a.	2a.	4m.					4m.			
North Smithfield.....				2m.		2m.	1m.						5a.			
Pawtucket.....				2a.		1a.	3m.	5a.	6m.				4a.		6m.	
Saltuete.....				4a.		1m.	2a.	3a.					5a.		5a.	6m.
Smithfield.....				1m.	4m.	2m.	3a.						5m.		6a.	
Woonsocket.....				3a.		2m.	1m.	4m.					10a.	9m.	1a.	
Providence City.....				11m.	10m.	7a.	4a.	8m.	2m.		5m.	3m.	3m.			6m.
Charlestown.....			6a.			2m.	5m.						5a.			
Exeter.....				1m.	4a.	4a.	2m.	3m.					4m.			
Hopkinton.....				1a.		2a.	3m.						3a.			
North Kingstown.....				2m.		1m.	4a.	5m.	6m.				3m.			
Richmond.....				1m.		2m.	4a.						3m.			
Westerly.....				1m.	2m.	3a.	6a.	5a.					4m.			

Figure 1, in the different columns of the Table, indicates the disease affecting the largest number of persons. Fig. 2, the next largest number, and so on. The letters following the figures denote the degree of severity; a, average, and m, mild. No returns from towns not on the list.

## ANNUAL REPORTS OF MEDICAL CORRESPONDENTS.

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The plan of obtaining from the regular medical correspondents of the Board, and other physicians, as in previous years, of a report at the commencement of each year, covering, in a general way, the whole of the preceding year, in relation to the amount of sickness of all kinds, the prevalence of particular diseases, and sanitary conditions and movements in their respective localities, has been continued and the following circular sent therefor :

### CIRCULAR No. 13.

#### OFFICE OF SECRETARY OF THE STATE BOARD OF HEALTH.

PROVIDENCE, Jan. 1, 1883.

#### *To Physicians :*

The Secretary of the State Board of Health desires to obtain from all respectable physicians in every section of the State, an Annual Report, covering the whole twelve months preceding the above date.

The following questions will indicate the information sought, and the general plan of such report ; but correspondents need not be confined to precise replies to the questions presented, all the freedom being allowable of such modifications and additions, as the circumstances or peculiarities of each locality may seem to warrant.

These annual reports are desired for the purpose of presenting the status of the public health and the sanitary conditions existing in the different sections of the State, during the year 1882, in the Fifth Annual Report of the State Board of Health.

They should be returned to the Secretary of the Board by the second week in February.

Any additional postage stamps needed to cover postage on more extended consideration of the topics suggested, or any other topic having relation to the public health, will be immediately refunded on the receipt of papers.

#### QUESTIONS.

1. Name of town and circuit.

2. Taking sickness of all kinds, has there been more or less than usual in your circuit during the past year ? How much ?

3. Which of the following zymotic diseases have prevailed in your circuit during the past year ? Please state when sporadic and when epidemic, whether mild, average or severe, and in what months they occurred, and in what localities ?

a. Cholera Infantum.

b. Croup.

c. Diarrhœa and Dysentery.

d. Diphtheria.

e. Fever, Malarial.

f. Fever, Typhoid.

g. Measles.

h. Scarlatina.

i. Small Pox.

j. Whooping Cough.

Any other important diseases becoming epidemic.

Also, please state what degree of prevalence, whether large, average or small, and if above average, in what months was the large occurrence, of the following named diseases. State degree of prevalence and time of occurrence under the words

	Degree of	
	PREVALENCE.	MONTHS.
k. Brain, Inflammation and Congestion of		
l. Bronchitis.		
m. Erysipelas.		
n. Meningitis, Cerebro Spinal		
o. Pneumonia.		
p. Rheumatism.		
q. Stomach, Acute diseases of		

4. Are there any diseases that regularly appear every year, in any locality in your circuit, that seem to be endemic or peculiar to that locality? If so, what diseases and where?

5. What diseases, not classed as zymotics, have had unusually large prevalence during the past year?

6. What diseases have been attended with unusual fatality?

7. Have any circumstances occurred within your observation or knowledge, that seemed to indicate that Scarlet Fever, Diphtheria or Typhoid Fever had been taken, or communicated from one person to another? A full history of known facts in detail should be given. Such history need not be confined to any particular year. State on separate sheet.

8. Has there been, in your opinion, any advance in public sentiment or of individuals, in your circuit, in regard to the importance of sanitary surroundings; or any increased interest in questions appertaining to means of preventing diseases, and promoting individual and general health? State what reasons for belief.

Very respectfully,

CHAS. H. FISHER,

*Sec. State Board of Health.*

The following extract from the Public Statutes in relation to the duties of town and local boards of health and practicing physicians, was also appended.

PUBLIC STATUTES, CHAPTER 83.

SEC. 6. The secretary of the said board shall make inquiry from time to time, of the clerks of town and local boards of health and PRACTICING PHYSICIANS, in relation to the prevalence of any disease, or knowledge of any known or generally believed source of disease, or causes of general ill-health, and also in relation to the proceedings of the said boards of health, in respect to acts for the promotion and protection of the public health, and also in relation to diseases among domestic animals in their several towns and localities respectively; and the said clerks of town and local boards of health, and the said PRACTICING PHYSICIANS, shall give such information, in reply to said inquiries, of such facts and circumstances as shall have come to their knowledge.

IN REPLY TO CIRCULAR No. 13.

The following reports, received from local correspondents of the medical profession in the several cities, towns and villages of the State, will give a good representation of the general status of the public health during the year 1882, as to the presence or absence of epidemics or endemics in the several locations, the sanitary conditions and improvements, if any, in their several circuits, and other suggestions in response to the preceding circular:

## BRISTOL COUNTY.

## 1. WARREN and BARRINGTON.

2. The general amount of sickness of all kinds, within the limits of this town in 1882, so far as I have knowledge, as compared with ordinary years, has been about an average of other years or slightly less.

3. Zymotic diseases have not prevailed largely during any part of the year.

Of cholera infantum there were a few cases of considerable severity during the summer.

Croup occurred occasionally during the year, mostly in the cooler months and of mild character mostly.

Diarrhœa was not largely prevalent at any time.

Diphtheria, very few sporadic cases, all mild.

Malarial Fevers. Have seen a less number of cases this year than last, and milder in form, mostly during the fall months.

No measles or small pox. Some mild cases of scarlatina, and a few of whooping cough in the fall.

The following have had rather less than average prevalence, acute diseases of the brain, bronchitis, erysipelas, pneumonia, rheumatism and acute diseases of the stomach.

There are but few diseases regularly and *particularly* endemic in my circuit. Large numbers of malarial fevers for the last three years.

I might also say, that on the east side of the village of Warren is a low and swampy locality, where there has occurred several times in the last few years, during the summer seasons, sickness resembling scarlet fever or diphtheria. I did not see any cases last season. I understood that three died in two weeks. It was partly owing to locality and partly to want of cleanliness.

O. BULLOCK, M. D.

## 1. WARREN and vicinity.

2. Taking sickness of all kinds, there has been about the same as usual.

3. The following zymotic diseases have prevailed to some extent during the past year:

Cholera Infantum. Rather less than usual number of cases, of a mild type, endemic. Late summer and early autumn months, not localized at all.

Croup. Much less than the usual number, mild in most cases, mostly of a spasmodic form. January, February and March.

Diarrhœa and Dysentery. A few cases compared with previous years, endemic. Summer and autumn months, mild.

Malarial Fever. About the same number as last year, epidemic, average. Summer, autumn and into December. Warren and Barrington.

Fever, Typhoid. A very few cases of a mild type, endemic, milder than last year in character. Spring and autumn.

Whooping Cough. Quite a number of cases, epidemic. Autumn, average.

No other important diseases epidemic.

The following diseases have prevailed in type and season as stated : Inflammation and Congestion of Brain, average; Bronchitis, average, January, February, March and December; Erysipelas, average; Cerebro Spinal Meningitis, none; Pneumonia, average; Rheumatism, average; Acute Diseases of Stomach, average.

5. No diseases, not classed as zymotics, have had unusually large prevalence during the year.

6. There has been less fatality attending diseases of all kinds, I think, this past year than usual.

The introduction of Kickimuit water, is a step, in my opinion, in advance in public sentiment in this circuit, in regard to the importance of sanitary surroundings and means of preventing diseases and promoting individual and general health.

G. L. CHURCH, M. D.

#### 1. BRISTOL.

2. Taking sickness of all kinds there has been less than usual in my circuit during the past year.

3. The following zymotic diseases have prevailed in this circuit during the past year, viz., as stated:

Cholera Infantum, very few cases; Diarrhoea and Dysentery, some cases, but mild; Malarial Fever, ten or twelve cases, the first malarial fever we ever had in Bristol; Typhoid Fever, we have had less typhoid fever than in former years and all sporadic cases; Whooping Cough, very few cases sporadic.

We had a number of cases of something similar to Gastric Fever, headache, vomiting, fever, purging, would last three or four days, sometimes could not keep a teaspoonful of water on the stomach for 24 hours, very thirsty all the while and cry for water, both adults and children suffered.

The undermentioned diseases prevailed as follows : Of Brain, a few mild cases of Congestion of Brain in August and September; Bronchitis, mild cases scattered through the year; Pneumonia, few cases, none fatal; Rheumatism, average number, no fatal cases.

4. No diseases regularly appear every year, in any locality in this circuit, that seem to be endemic or peculiar to that locality ?

5. No diseases, not classed as zymotics, have had unusually large prevalence during the year.

6. No diseases have been attended with unusual fatality.

T. H. SHIPMAN, M. D.

## KENT COUNTY.

1. COVENTRY, and parts of adjoining towns.
2. Taking sickness of all kinds, there has been somewhat less than usual in this circuit during the past year, say 16 per cent.
3. The following zymotic diseases have prevailed in this circuit during the year:

Cholera Infantum. July and August, very fatal but few cases; June, one sporadic case, recovered.

Croup. Numerous mild cases, none fatal.

Diarrhœa and Dysentery. July and August, numerous cases near stagnant ponds and reservoirs, and up on high land where the wells were low or water impure.

Diphtheria quite prevalent in Washington and Coventry Centre during winter, fall and spring months, say six months of time; mostly epidemic and rather severe; one fatal.

Malarial Fever. Six or eight cases, but were imported from other sections.

Typhoid Fever. But very few cases, those proving fatal from hemorrhage.

Measles. Numerous cases, but *very mild*.

Scarlatina. Simplex, numerous cases; malignant form, but few cases.

Whooping Cough. Plentiful during spring, not severe as a rule.

Other Diseases. Bronchial Catarrh every spring for several years, *differing from influenza*.

Inflammation and Congestion of Brain. Few cases October and November.

Bronchitis. Average number September, October and November.

Erysipelas. Small number January and March.

Cerebro Spinal Meningitis. One case, fatal, October.

Pneumonia. Large number, severe; spring months large prevalence and fatal.

Rheumatism. Large number; rheumatic fever winter months; usual forms of rheumatism the *whole year*.

Acute diseases of Stomach. Acute dyspepsia during summer months.

4. Among the diseases that regularly appear every year that seem to be endemic or peculiar to that locality, are ulcerated throats, at Coventry Centre, near the reservoirs.

5. No diseases, not classed as zymotics, have had unusually large prevalence during the year?

6. Pneumonia cases have been attended with unusual fatality.

7. I attended a case of diphtheria, recognized it from its peculiar odor the moment I entered the room; examined throat; accidentally inhaled patient's breath; made a note of it as I am predisposed to diphtheria, and tried to avoid

exposure to colds, etc.; just two weeks I came down with diphtheria; it might have been accidental. Recently I attended a case of diphtheria 12 miles distant; six days later my wife visited and kissed the patient; thirteen days from the time of my first visit I came down with diphtheria; six days later my wife came down with diphtheria; we are now convalescent. I know of no other cases at present. The above might have accidentally happened, but I think it was communicated.

8. No public advancement but some private.

F. B. SMITH, M. D.

1. EAST GREENWICH and adjoining towns.

2. Taking sickness of all kinds, there has been about ten per cent. less than usual in this circuit during the past year.

3. The following zymotic diseases have prevailed in this circuit during the past year, as stated below:

Cholera Infantum. A few sporadic cases in August and September, not severe.

Croup. A few cases of catarrhal croup, not bad, none fatal.

Diarrhœa and Dysentery. Less than usual in August, September and October.

Diphtheria. A few sporadic cases, none fatal.

Malarial Fever. Four or five cases in this town of decided intermittent type, and four or five in Old Warwick; never before known in these localities.

Typhoid Fever. Very little and very mild.

Scarlatina. A few cases of mild form, scattered through the whole year and through the whole town.

Whooping Cough. Quite prevalent in the summer and autumn; uncomplicated.

No other important diseases epidemic.

Other diseases as follows:

Inflammation and Congestion of Brain. Not prevalent.

Bronchitis. The prevailing disease in winter and spring.

Erysipelas. Not many cases.

Pneumonia. Frequent in winter and spring and all the year.

Rheumatism. Not much the past year.

4. There are no diseases that regularly appear every year, in any locality in this circuit, that seem to be endemic or peculiar to that locality.

5. No diseases, not classed as zymotics, have had unusually large prevalence during the past year.

6. No diseases have been attended with unusual fatality.

7. From circumstances which have occurred within my observation in regard to scarlet fever, diphtheria or typhoid fever, I infer that all these diseases, when malignant, infect the house and neighborhood, and are communicated to children, the first two, and the last named to young persons exposed to it.

8. There is some attempt at improvement in this way, but often faulty, as in the instance of covered drains and cesspools without traps, for the commoner open sink drain; and uncemented privy vaults and cesspools.

J. H. ELDRIDGE, M. D.

1. EAST GREENWICH and neighboring towns.

2. Taking sickness of all kinds, there has been about one quarter less than usual in my circuit during the past year.

3. The following zymotic diseases have prevailed in this circuit during the year:

Cholera Infantum. A few sporadic cases.

Croup. Only one case true croup; several cases false croup.

Diarrhoea and Dysentery. Have prevailed somewhat, but not epidemic.

Diphtheria. Prevailed in January and February, somewhat.

Malarial Fever. A few mild cases.

Typhoid Fever. Several severe cases in surrounding country, but none in village of Greenwich.

Measles. A few cases in January and February.

Scarlatina. Sporadic cases all through the year.

Whooping Cough. Has prevailed to a considerable extent.

The undermentioned diseases have occurred, with the degree of prevalence stated, scattered throughout the different months of the year:

Inflammation and Congestion of Brain, slight; Bronchitis, moderate; Erysipelas, moderate; Pneumonia, moderate; Rheumatism, moderate; Acute diseases of Stomach, moderate.

4. I have seen no diseases that regularly appear every year, in any locality, that seem to be endemic or peculiar to that locality.

5. No diseases, not classed as zymotics, have had unusually large prevalence during the past year.

6. None have been attended with unusual fatality.

7. As to the communicability of scarlet fever, diphtheria or typhoid fever, there have been evidences that each of these diseases have been communicated from one person to another.

8. As to any advance in public sentiment or of individuals, in regard to the importance of sanitary surroundings, I may say that there has been a Rural Improvement society formed in this village that may increase the spirit for cleanliness, removal of rubbish, etc.

E. G. CARPENTER, M. D.

1. WARWICK.

2. Taking sickness of all kinds, there has been an average in my circuit during the past year.

3. The zymotic diseases which have prevailed in my circuit during the past year, are as follows:

Cholera Infantum. Average, summer months.

Diarrhœa and Dysentery. Average, during the warm season.

Diphtheria. Mild, scattered through the year.

Malarial Fever. Epidemic, summer and fall, mostly on north branch of Pawtuxet.

Typhoid Fever. Less amount than usual.

Measles. Average.

Scarlatina. Sporadic, nearly the whole year.

Whooping Cough. Average.

No other important disease epidemic.

Other diseases prevailed as follows:

Inflammation and Congestion of Brain. Quite infrequent.

Bronchitis. Scattered through the year, mild.

Pneumonia. Average, January and February.

Rheumatism. Average, mostly in the summer months.

4. No diseases regularly appear every year, in any locality that seem to be endemic or peculiar to that locality.

5. No diseases, not classed as zymotics, have had unusually large prevalence during the past year.

6. No diseases have been attended with unusual fatality.

8. Some advance in public sentiment or of individuals, in regard to the importance of sanitary surroundings and means of preventing diseases, shown by constant inquiries in regard to sanitary rules.

A. G. SPRAGUE, M. D.

#### NEWPORT COUNTY.

1. NEW SHOREHAM.

2. Sickness of all kinds has been about the same as usual during the past year.

3. The following zymotic diseases have prevailed here during the year:

Cholera Infantum. Two cases only during the year, one fatal.

Diarrhœa and Dysentery. Mild cases during July and August.

Measles. Two cases.

Whooping Cough. General epidemic November and December.

No other important disease epidemic.

Other diseases:

Bronchitis, small number; Erysipelas, 2 cases only; Pneumonia, one case only; Rheumatism, average number; Acute diseases of Stomach, average number.

4. There are no diseases that seem to be endemic or peculiar.
5. No diseases have had unusually large prevalence during the past year, except whooping cough.
6. No diseases have been attended with unusual fatality.
8. I think a considerable advance has been made in regard to having better ventilated living and sleeping apartments.

C. H. HADLEY, M. D.

1. TIVERTON.

2. The general sickness for 1882, of all kinds, has been about an average of ordinary years.

3. There has been a remarkable freedom from epidemics of all kinds during the year, excepting that during the early spring months there were a large number of a bastard form of whooping cough. Of all these cases I did not see a true case of what I could call true whooping cough, most cases lacking the whoop, and the disease attacking old and young indiscriminately and whether they had before suffered from the disease or not, or again passing by those who were not "protected." The disease took the form of an epidemic bronchitis and laryngitis.

Cholera Infantum. A few cases during hottest weather.

Croup. True, none.

Diarrhœa and Dysentery. Every summer thus far, has a few cases.

Typhoid Fever. Seven cases reported during the fall, in two school districts there were two or three cases; nearly all these cases were separated; one family on Fish road had two cases; one family in north part of District No. 4, 1 case; one family in south part of District No. 4, 1 case; one family in north end District No. 3, a boarder from Providence; one family in south end District No. 3, 1 case; one family on east side of same, 1 case—father to preceding—died, the only death reported from typhoid.

Whooping Cough. Only as stated above.

No other important disease epidemic.

Last two months of year remarkably healthy.

The following diseases prevailed as stated:

Bronchitis. Average number, March and April.

Pneumonia. Less than average during March, April, November and December.

Rheumatism. In some forms above the average of dryer atmospheres, scattered through the whole year.

4. The diseases that regularly appear every year, and that seem to be endemic or peculiar to locality are diarrhœa, dysentery and cholera infantum, about Stone Bridge and more particularly in the centre and eastern portions, near the swamp.

5. No diseases, not classed as zymotics, have had unusually large prevalence during the year.

6. No diseases have been attended with unusual fatality.

7. One circumstance occurred within my observation that seemed to indicate that typhoid fever had been taken or communicated from one person to another. The case of typhoid mentioned above when the father, who cared for and nursed his son, became sick and lingered on and died, with what was considered typhoid, the son being down with the same.

8. No advance in public sentiment or of individuals, in regard to the importance of sanitary surroundings, or increased interest in means of preventing diseases.

E. P. STIMSON, M. D.

1. NEWPORT, JAMESTOWN and MIDDLETOWN.

2. Taking sickness of all kinds, there has been less than usual in my circuit during the past year.

3. The following zymotic diseases have prevailed during the year:

Cholera Infantum. August and September, not epidemic nor very severe; chiefly in poorer neighborhoods in Newport.

Croup. Very little croup at any time.

Diarrhœa and Dysentery. Diarrhœa as usual; a few cases of dysentery, not severe or obstinate in the beginning of autumn.

Diphtheria. Occasional cases through the year, generally mild and manageable.

Malarial Fever. None, except one very mild case in Middletown, near newly flooded land, in April.

Typhoid Fever. A few mild cases during the summer, not more than three or four in my practice, in not very unfavorable localities, and about as many in early winter, more severe; only one death.

Scarlatina. Occasional cases, not generally severe, scattered through the year and through the community.

Small Pox. Began in December, 1881, and continued to February, 1882; about ten cases, three deaths.

Whooping Cough. Have heard of its prevalence, but have had no applications for treatment; I should say the form was mild.

No other important disease epidemic.

Other diseases:

Pneumonia. Generally prevails here during the winter and early spring; in 1882 it did not prevail in as severe form as usual.

Rheumatism. No unusual prevalence; its usual time here is in the winter and spring.

Acute diseases of Stomach. Nothing unusual, unless unusual exemption, usual time late in the summer.

4. No diseases that regularly appear every year that seem to be endemic or peculiar to this locality.

5. No diseases have had unusually large prevalence during the past year.

6. No diseases have been attended with unusual fatality.

7. In regard to scarlet fever, diphtheria or typhoid fever being taken, or communicated from one person to another, a long observation has persuaded me that each of these diseases is sometimes the result of contact, and that in very many cases they originate without such cause.

8. There is a growing tendency to attend to sanitary matters, and constantly increasing facilities for improving the sanitary conditions on the part of the city and of individuals.

H. E. TURNER, M. D.

#### CITY OF NEWPORT.

During the early spring months and summer there was considerable more illness in Newport than usually exists during the same period. This increased illness in the summer was in a measure caused by the existing drought, and the unsanitary condition of many of the streets of the city.

Cholera Infantum, Croup and Diphtheria have not prevailed to any extent during the past year; the cases of diphtheria which existed during the spring were generally mild. During the fall and early winter the city has been exceptionally free from both diphtheria and croup. The cases of cholera infantum were few in number and almost exclusively confined to the poorer sections of the city.

Diarrhœa and Dysentery prevailed to an unusual extent during August, September and part of October; a large number of the cases were severe in character notwithstanding the mortality was very low; the case took the form, on the onset, of a so called bilious diarrhœa, attended with more or less profuse vomiting, fever and exhausting diarrhœa. The majority of the cases were relieved in two or three days, but many were prolonged into a dysentery. It was no uncommon thing to find three to six, and even more, in one household taken down suddenly, without any apparent cause, with this form of diarrhœa. It occurred equally among the families of the rich as well as among the poor; among those who used cistern, well or city water; carefulness of diet did not seem to save many from the trouble. During the latter part of September and early in October a severe form of dysentery prevailed in certain sections of the city, chiefly among the poorer classes.

Malarial Fever is not met with in Newport, excepting among patients who come to the city from malarial districts. A fever of a typhoid type has existed in our city to a greater extent than usual during the summer months. Many cases of true typhoid were met with and in cases which came under my own observation, sanitary defects were found to exist in almost every case. Aside from the cases of true typhoid there were met with an unusual number of cases of prolonged fever, commonly called "low fever," but which is doubtless caused in the majority of cases, by the same poison as typhoid.

The city has been exceptionally free, during the last twelve months, from measles, scarlet fever and whooping cough. We have had some scarlet fever, but much less than during previous years.

During the early months of the year seven or eight cases of small pox were reported in the city; over three of the cases doubtful opinions were expressed as

to whether they were small pox, but as a direct line of contagion could be traced in each case, and two undoubted cases were traced to one of the doubtful ones, it seems clear that they were all cases of small pox. The two original cases were imported into the city, one from Philadelphia and one from the country. Four of the cases died. The patients were quarantined in their own homes and treated at home.

The question as to the degree of prevalence, and month in which prevailed, inflammation and congestion of the brain, bronchitis, erysipelas, cerebro spinal meningitis, pneumonia and rheumatism, can hardly be satisfactorily answered, as none of these diseases have prevailed to an extent sufficient to express their degree of prevalence. During the early months of the year tonsilitis prevailed to rather greater extent than usual.

In the early part of September a case of sporadic asiatic cholera existed here. The press of Rhode Island and the country at large have reported the case so fully, and I might say so erroneously, by some, that I hesitate to more than mention the case in this report. The case was under my immediate care from the onset, and I do not hesitate for a moment to say that it was one of undoubted sporadic asiatic cholera. This opinion is borne out by the two physicians who saw the case in consultation, and by three others who were at the postmortem examination, making six who gave it as their undoubted opinion that the case was one of sporadic asiatic cholera.

As cholera has appeared in a large number of places throughout the commercial world, during the past summer, and during the early fall and winter has prevailed in Mexico, I deem it proper to mention the case.

The history of the case, in brief, is as follows:—I was called about two a. m. to see the patient, a boy about seven years old, a delicate child, who a month previously had been prostrated by a sharp diarrhoea which was at that time prevailing in Newport. The child had apparently been perfectly well the day previous; had eaten ordinary diet, which, in his case, was always carefully selected; had taken a bath in the bay during the day, and went to bed feeling perfectly well; was awakened about midnight with severe pain in the bowels and desire for stool; had two movements which prostrated him very much. I was sent for; found patient with rather feeble pulse, not very severe pain in the bowels, mind clear, skin of hands and feet cool. One of the movements, which I saw by imperfect light, consisted of soft faecal matter, but as it was mixed with a good deal of urine passed in the evening, I did not suspect the true character of the trouble. Ordered stimulants and Bismuth and Tully powders which they had on hand, and hot water bottles to the extremities, if they were cool.

Not suspecting anything serious I went home; was called again at six a. m.; found the child in collapse; cold extremities, pulse quick and scarcely perceptible, breath cool, delirium, eyes sunken, hands and feet shriveled, nails blue. The patient was found to have had in all four movements, two of which, inspected by daylight, showed the typical rice water evacuations, in which were seen a large quantity of flocculent particles of the epithelium of the mucous membrane. Before death, which took place between 8 and 9 a. m., the hands and feet were markedly withered, the fingers, toes and feet contracted, presenting the so called claw shaped appearance; finger tips, ears and toes of a bluish

look, and the whole body shrunken. Two hours after death, as the air struck the body when the undertaker removed the bed clothes, the quivering or contraction of the feet, so often seen in cholera, was very marked.

The following is the report of the postmortem examination made twenty-four hours after death, in the presence of the three attending physicians and three physicians unconnected with the case during life.

*Conjunctivæ* dry and parchured like; subcutaneous connective tissue somewhat dry; many mesenteric glands enlarged; small intestines of deep rosy hue externally, this color being most marked in ileum, and decreasing upwards; ileum smeared by quantity of semi-gelatinous material of yellowish gray color; jejunum and duodenum contain yellowish fluid, but not of a bilious character; mucous membrane very friable and easily stripped from subjacent tissue; this condition especially marked in rectum; one Peyer's slightly congested; stomach filled with fluid and curds; no foreign body found in alimentary canal, nor undigested food, excepting curds of milk in stomach; entire absence of fæces and fecal odor in intestine; an intussusception of about three inches, of kind occasionally occurring in cholera and other diarrhæal diseases, formed in lower part of ileum; bladder empty with dry and hardened wall; liver pale, but not unduly dry; spleen apparently normal.

The history of the case and the postmortem evidence are certainly typical of asiatic cholera, and, notwithstanding this fact, the attending physicians did not mean to infer that it was a case of true contagious cholera, for they prefixed the word "sporadic," hoping that would imply not epidemic, and that there was no apparent cause for uneasiness.

I take the liberty of quoting from a letter addressed to the Sanitary Protection Association, by Dr. J. L. Cabell, President of the National Board of Health, and a relative of the little patient. Dr. Cabell came to Newport at the request of the family and his letter very aptly expresses the opinion of those who had charge of the case. The doctor says: "I derive the opinion that the gentlemen who had concurred in the diagnosis of asiatic cholera, did not intend to affirm that a disease of exotic origin had been introduced into Newport, or that the case was necessarily of an infectious nature; neither, on the other hand, would they pronounce a negative opinion as to either of those propositions. *They did affirm that the symptoms in the case in question were not distinguishable from those of asiatic cholera.* A few more days will doubtless settle the question beyond controversy, in the meantime I am constrained to avow my belief that the probabilities are decidedly averse to the view that the case was one of specific infectious cholera, while *I freely admit that the symptoms and postmortem are entirely consistent with such a view.*"

The sanitary reform movement progresses very slowly in our city. The vast majority of the community feel the importance of improved sanitary conditions and are anxious for the formation of a local board of health, but the city council, who are ex-officio a board of health, seem loth to give up their power as health officers. The importance and necessity of a well organized board of health for our city is only too apparent. Newport is a health resort; people from all parts of the Union come here not only for pleasure, but also for health; physicians send delicate patients and invalids here to recuperate and to gain a

new stock of life. The fame of Newport, for good or for bad, goes abroad, not only throughout our own country, but throughout Europe; the preservation of our good name as a place for health, is of the most vital importance; not only Newport, but Rhode Island itself is benefited by the affluence which tends towards Newport in summer. Our death rate is low, but it should be much lower; our natural surroundings are all that could be desired to make the city, not only most attractive to the eye, but all that could be wished for as a northern health resort; but the one great important defect is want of a more perfect local sanitary condition, with an intelligent board of health to superintend the flushing of sewers and keeping their eye-holes washed out, the streets in a healthy condition and the inspection and government of cesspools and privies. The Sanitary Protection Association, which has now been in existence over three years, continues to do its good work, and is in a flourishing condition. The sanitary inspection of the city, made under the direction of the National Board of Health, by its inspector, Mr. Ernest Bowditch, has been completed, and the report will soon be published by the National Board.

F. H. RANKIN, M. D.

1. NEWPORT.

2. I think, taking sickness of all kinds, there has been rather more than usual in this city during the past year.

3. The following zymotic diseases have prevailed in this city during the year. Cholera Infantum. Sporadic in July and August, and severe in scattered localities.

Croup. Spasmodic, about as prevalent as usual in the spring and winter.

Diarrhœa and Dysentery. Extremely prevalent in August and September, but not confined to localities.

Diphtheria. Slight cases only, but affecting one after another of a family; in the spring, in Church street court, a number of cases; in the summer severe cases of diarrhœa in same locality, and since one bad case of carbuncle, bad water and badly drained houses.

Malarial Fever. None contracted here.

Typhoid Fever. A few light cases in early winter indifferent parts of the town.

Scarlatina. Epidemic on Williams' wharf and upper part of Spruce street in early summer.

Small Pox. Small number in January and February.

Whooping Cough. A few cases.

No other important zymotic disease epidemic.

Other diseases prevailed as follows:

Inflammation and Congestion of Brain. A few cases August and September.

Bronchitis. Epidemic in December and January.

Pneumonia. A few cases January, November and December.

Rheumatism. Very little acute, always much of the chronic.

Acute diseases of Stomach. A few severe cases November and December.

4. No diseases that regularly appear every year, in any locality that seem endemic or peculiar to that locality.

5. No diseases, not classed as zymotics, have had unusually large prevalence during the past year.

6. Cases of Cholera Morbus were unusually fatal.

8. I find more than usual antagonism to sanitary improvements; most of the houses have no traps to their drains, and in winter, when kept shut up, the smell of sewer gas is always noticeable to me, while the occupants don't notice it; there is apt to be much sickness among the delicate in such localities. I should be glad of a law forbidding plumbing in houses unless drains are properly trapped.

A. NEWS, M. D.

### PROVIDENCE COUNTY.

1. VALLEY FALLS and parts of CUMBERLAND and LINCOLN.

2. Taking sickness of all kinds, there has been about the usual amount in my circuit during the past year.

3. The zymotic diseases that have prevailed in my circuit during the past year are as follows:

Cholera Infantum. Sporadic, mild, August to October.

Croup. Sporadic, mild, May and November.

Diarrhœa and Dysentery. Sporadic, mild.

Malarial Fever. Epidemic, mild, June to November.

Typhoid Fever. Sporadic, mild, December.

No Measles, Scarlatina or Small Pox.

Whooping Cough. Sporadic, mild, October.

No other important disease epidemic.

Usual diseases.

Bronchitis. Average prevalence, fall and spring months.

Pneumonia. Mild, October.

Rheumatism. Mild, through the year.

Acute diseases of Stomach. Average.

4. There are no diseases that regularly appear every year, in any locality in my circuit, that seem to be endemic or peculiar to that locality.

5. No diseases, not classed as zymotics, have had unusually large prevalence during the year.

6. No diseases have been attended with unusual fatality.

7. Nothing new in relation to circumstances that seemed to indicate that scarlet fever, diphtheria or typhoid fever had been taken, or communicated from one person to another.

8. No advance in public sentiment or of individuals, in regard to the importance of sanitary surroundings.

G. B. HAINES, M. D.

1. PAWTUXET and parts of CRANSTON and WARWICK.

2. Taking sickness of all kinds, there has been at least ten per cent. more than usual in my circuit during the past year.

3. The following zymotic diseases have prevailed in my circuit during the year.

Cholera Infantum. Few cases and comparatively mild.

Croup. Spasmodic, about the usual number.

Diarrhœa and Dysentery. Occasional sporadic cases.

Diphtheria. Four cases, one death in 1882; about twenty-five cases in 1881, six deaths.

Malarial Fever. Intermittent, about thirty cases; typho malarial three, and a large number of mixed cases, apparently of malarial origin.

Typhoid Fever. Four only.

Whooping Cough. Has prevailed during the fall months.

No other important disease epidemic.

Other diseases, with average degree of prevalence, except as stated below:

Bronchitis. Quite prevalent during the spring, fall and winter.

Erysipelas. Two cases only.

Pneumonia. About the usual number of cases; no deaths.

Rheumatism. But few cases of Acute.

Acute diseases of Stomach. Several cases of gastric fever, but none uncomplicated.

4. No diseases that regularly appear every year, in any locality in my circuit, that seem to be endemic or peculiar to that locality to my knowledge.

5. No diseases, not classed as zymotics, have had unusually large prevalence during the past year.

6. None attended with unusual fatality.

8. As to any advance in public sentiment or of individuals, in my circuit, in regard to the importance of sanitary surroundings, I have seen no evidence of it; during the summer months the odor of privy vaults frequently pervades the entire village, and has been noticed and remarked upon by strangers.

With regard to question 7, I would reply that I have no record of facts bearing on the communicability of the diseases referred to. During the prevalence of diphtheria in this locality, a little over a year ago, the cases were confined almost exclusively to the scholars of the public school on the Warwick side of the bridge. It was during the first term of occupancy, after the removal of the school house to its present location, on a lot adjoining a graveyard, where a cellar had been dug, one half deep and the other half shallow, and the build-

ing placed over it. I examined the cellar in search of some local source of infection, but could discover nothing remarkable, except a quantity of old and rotting lumber, and some large patches of mold, or fungous, on the ground of the shallow part of the cellar. I had the house closed and thoroughly fumigated with sulphur; the cellar cleaned out and a quantity of air slacked lime placed in it, since which time the school has been healthy. Two of the children of Alonzo Stone attended the school; they had the disease severely, as did also the mother and younger sister, within a fortnight after the first two, who were attacked almost simultaneously; a cousin of the Stone boys, living half a mile distant, came to see them once while they were sick, and came down with the disease within a week, and a playmate of his, living next door, was attacked a few days after he was and came very near dying. A sister also, of the first mentioned, took the disease.

WM. J. BURGE, M. D.

1. FOSTER.

2. Taking sickness of all kinds, there has been about as much as usual in this circuit during the past year.

3. The following zymotic diseases have prevailed during the year:

Cholera Infantum. Very few cases, not epidemic, mild.

Croup. Very few cases, sporadic, mild.

Diarrhœa and Dysentery. Small prevalence, mild.

Diphtheria. Few cases, sporadic, mild.

Malarial Fever. Few cases, imported, mild.

Typhoid Fever. About as usual, not a large number, mild.

Scarlatina. About as usual, sporadic, mild.

Whooping Cough. Few cases, not epidemic, mild.

No important disease epidemic.

Also the following:

Inflammation and Congestion of Brain. About the average of other years.

Bronchitis. About the average, cooler months.

Erysipelas. Little above the average.

Pneumonia. Above the average, mild.

Rheumatism. About the average, mild.

Acute diseases of Stomach. Average number, mostly summer months.

4. No diseases that regularly appear every year, in any locality, that seem to be endemic or peculiar to that locality.

5. No diseases have had unusually large prevalence during the past year, unless erysipelas and apoplexy be so considered.

6. No diseases have been attended with unusual fatality.

7. No circumstances have occurred within our observation or knowledge, during the year that seemed to indicate that scarlet fever, diphtheria or typhoid fever had been taken or communicated from one person to another.

8. No advance in public sentiment or of individuals in our circuit, worth mentioning, in regard to the importance of sanitary surroundings.

M. P. ARNOLD, M. D.

H. ARNOLD, M. D.

1. GLOCESTER, with parts of BURRILLVILLE and SMITHFIELD.
2. Taking sickness of all kinds, there has been ten per cent. less than usual in this circuit during the past year.

3. The zymotic diseases that have prevailed in this circuit during the past year are as follows:

Diarrhœa and Dysentery. Sporadic cases only.

Diphtheria. A few sporadic cases in outlying farm houses, mild, in first quarter of the year.

Malarial Fever. A few imported cases.

Typhoid Fever. Two cases in one family, on farm three miles from village, August and September, average severity.

No disease epidemic.

The prevalence of other diseases may be given as follows:

Inflammation and Congestion of Brain. Small, warmer months.

Bronchitis. Average, spring and fall.

Erysipelas. Small.

Pneumonia. Average, November and December.

Rheumatism. Small, scattered through the year.

Acute diseases of Stomach. Average.

4. No diseases that regularly appear every year, in any locality, that seem to be endemic or peculiar to that locality.

5. No diseases have had unusually large prevalence during the past year.

6. None have been attended with unusual fatality.

8. No advance apparent in public sentiment or of individuals, in our circuit, in regard to the importance of sanitary surrounding.

POTTER & HARRIS, M. DS.

1. JOHNSTON and CITY OF PROVIDENCE.

2. Taking sickness of all kinds there has been about thirty per cent. more than in 1881.

3. The following zymotic diseases have prevailed in this circuit during the past year:

Cholera Infantum. Sporadic cases in months of August and September.

Croup. Sporadic cases in spring months.

Diarrhœa and Dysentery. Prevalent from July to November, not particularly severe.

Diphtheria. Sporadically during the year and non-malignant.

Malarial Fever. Generally prevalent in certain localities, as at "Silver Lake," epidemic, from July to November.

Typhoid Fever. In form of typho malarial very extensively prevalent; this disease has been exceptionally severe and malignant.

Measles. Have treated but few cases, though having knowledge of its limited prevalence in mild form.

Whooping Cough. About the usual number of cases treated, not epidemic.

No other important disease epidemic.

Of other diseases, the degree of prevalence, in my practice, was as follows:

Inflammation and Congestion of Brain. Slight, October, one case.

Bronchitis. Quite prevalent from January to June and from October to date.

Erysipelas. Not prevalent. My only recorded cases occurring in February, March and December.

Pneumonia. Average, the greater number of my cases of pulmonary congestion have occurred in June and December.

Rheumatism. Acute, subacute and chronic have prevailed throughout the year.

Acute diseases of Stomach. Gastritis not prevalent, imitation developed in the course of other disorders.

4. Have no knowledge of diseases that regularly appear every year, in any locality, that seem peculiar to that locality.

5. No other diseases have had unusually large prevalence during the past year, in the circuit of my practice.

6. Of diseases that have been attended with unusual fatality, typhoid fever was the most fatal, *excepting phthisis pulmonalis*.

In response to question No. 7, in your circular of enquiry, I have to state in regard to scarlatina, that experience tends to confirm my belief that it is a contagious disease; that in diphtheria the contact of the vitiated morbid secretions will reproduce the disease, that its germs, so to speak, may be conveyed by the respired air; in other words, that it is both contagious and infectious. That typhoid fever is an infectious disease, conveyed in the air or water, received into a system prepared for, and susceptible to the impression and development of the malady.

As to question No. 8, I am glad to state, that within the limits of the city of Providence, as far as my observation extends, an advance has been made in the intelligent comprehension of the causes of disease and in means and measures for its prevention.

L. D. McLEAN, M. D.

1. LONSDALE with LINCOLN and CUMBERLAND.

2. Taking sickness of all kinds, there has been rather less than usual in this circuit during the past year.

3. The following zymotic diseases have prevailed during the year:

Cholera Infantum. Not as many cases as usual, and less severe, July, August and September.

Diarrhœa and Dysentery. More than usual, sporadic, but very severe, July and August.

Diphtheria. A few mild cases during the year.

Malarial Fever. Some fifteen cases, August, September and October.

Typhoid Fever. One severe case only, August.

Measles. One only.

Scarlatina. A few sporadic mild cases, December and January.

Whooping Cough. A few cases, not severe.

No important disease epidemic.

The degree of prevalence of usual diseases was as follows:

Inflammation and Congestion of Brain. One case tubercular meningitis, fatal, August.

Bronchitis. Several mild cases capillary bronchitis during fall and winter.

Erysipelas. Four cases, one fatal, rest not severe, winter and spring.

Pneumonia. About usual number, one severe, two or three average, winter.

Rheumatism. A few cases, average severity, spring.

4. No diseases that regularly appear every year, in any locality, that seem to be endemic or peculiar to that locality.

5. No diseases have had unusually large prevalence during the year.

6. No diseases have been attended with unusual fatality.

8. No apparent advance in public sentiment or of individuals, in regard to the importance of sanitary surroundings; or increased interest in means of preventing diseases.

A. E. KEMP, M. D.

1. PAWTUCKET and LINCOLN.

2. Taking sickness of all kinds, there has been about an average in this vicinity during the past year.

3. The following zymotic diseases have prevailed during the past year:

Cholera Infantum. To some extent in July and August.

Croup. A few cases only.

Diarrhœa and Dysentery. Not to any extent.

Diphtheria. Very little.

Malarial Fever. Very prevalent in the spring and fall.

Typhoid Fever. Quite prevalent in September and first week of October, all cases mild, one case in November very severe.

Scarlatina. A few cases.

Whooping Cough. A very few cases.

No other important disease epidemic.

Other diseases as stated below:

Bronchitis. Quite prevalent in January, February and March.

Erysipelas. Very little.

Pneumonia. A few cases in March and April.

Rheumatism. Quite prevalent from March to July.

Acute diseases of Stomach. Very few.

4. No diseases that regularly appear every year, in any locality, that seem to be peculiar to that locality.

5. No diseases had unusually large prevalence during the year.

6. None attended with unusual fatality.

8. I think there has been some advance in public sentiment in regard to the importance of sanitary surroundings, and increased interest in questions appertaining to means of preventing diseases and promoting individual and general health.

A. A. MANN, M. D.

1. CITY OF PROVIDENCE.

2. Taking sickness of all kinds, there has been the usual amount in this city during the past year.

3. The following zymotic diseases have prevailed in this city during the year:

Cholera Infantum. An increase over several previous years; largest number in July and August; could hardly be called epidemic at any time.

Croup. Prevailed in March, April and December, slight increase.

Diarrhœa and Dysentery. Have prevailed to some extent through the year; largest prevalence in July, August and September; not epidemic.

Diphtheria. Somewhat increased prevalence, but generally of mild form; scattered through the year, but largest number in the cooler months.

Malarial Fever. About the same in number of cases, but prevailing over a larger area of the city; generally mild.

Typhoid Fever. Prevailed rather more largely than usual throughout the year; became epidemic about the first of November and continued so to the end of the year; largest prevalence ever known.

Measles. Sporadic cases.

Scarlatina. Lessened prevalence and lessened severity.

Small Pox. Have known of but one case.

Whooping Cough. Prevailed through the year, but not in large degree; largest number during first six months.

No other important disease epidemic.

Inflammation and Congestion of Brain. Usual number; quite as prevalent in the cooler as in the hottest months.

Bronchitis. Throughout the year; severe in January, February and December.

Erysipelas. Average.

Cerebro Spinal Meningitis. No epidemic.

Pneumonia. Large prevalence in April and May; other months as usual.

Rheumatism. Large prevalence in the spring months; average through the year.

Acute diseases of Stomach. No unusual number.

4. There are no diseases that regularly appear every year, in any locality in this city, that seem to be endemic or peculiar to that locality, except malarial fevers around Mashapaug pond.

5. No diseases, not classed as zymotics, have had unusually large prevalence during the year.

6. No diseases have been attended with very unusual proportional fatality, although pneumonia, cholera infantum and typhoid fever were rather severe in form.

7. No unusual circumstances that seemed to indicate that scarlet fever, diphtheria or typhoid fever had been taken, or communicated from one person to another.

8. It is believed there is some advance in public sentiment in regard to importance of sanitary surroundings.

C. H. FISHER, M. D.

1. CENTREDALE, including NORTH PROVIDENCE, JOHNSTON and SMITHFIELD.

2 Taking sickness of all kinds, there has been one-third less than usual in this circuit during the past year.

3. The zymotic diseases that have prevailed during the past year are as follows:

Cholera Infantum. Less than the average number; few fatal cases in Centredale and Georgiaville in August and October; sporadic cases.

Croup. Few sporadic cases, Centredale and Manton.

Diarrhoea and Dysentery. Smallest number of cases I ever knew.

Diphtheria. Have had very little true diphtheria, except at Stillwater, where I had two of the worst cases I ever saw, and would suggest a better system of drainage in that village.

Malarial Fever. Had many severe cases of intermittent and remittent fevers at Manton and below; very little above.

Typhoid Fever. Only one case of typhoid above Manton; a number at and below that village.

Measles. Very little prevalence of measles, but of a severe type, and accompanied with dangerous complications.

Scarlatina. A few mild cases at Georgiaville.

Whooping Cough. Small number, but of severe type; in one case a fatal meningitis developed.

No other important disease epidemic.

The following diseases of usual occurrence prevailed as stated below.

Inflammation and Congestion of Brain. Few secondary cases.

Bronchitis. No marked prevalence from November to April.

Erysipelas. Few sporadic cases.

Pneumonia. Few severe cases; spring and fall.

Rheumatism. Less than usual; mild.

Acute diseases of Stomach. Few cases during summer months.

4. In regard to diseases that regularly appear every year, in any locality, that seem to be endemic or peculiar to that locality, would say we are almost sure to have cases of diphtheria in Stillwater every summer.

5. No diseases have had unusually large prevalence during the year.

6. No diseases have been attended with unusual fatality except as stated above.

8. Might say in relation to any advance in public sentiment or of individuals, in regard to the importance of sanitary surroundings, that during the epidemic of typhoid last fall much interest was manifested in Johnston to abate nuisances.

C. H. BARNARD, M. D.

1. PROVIDENCE, CRANSTON and JOHNSTON.

2. Taking sickness of all kinds, there has been twenty per cent. more than usual during the past year.

3. The following zymotic diseases have prevailed during the year:

Cholera Infantum. Sporadic; mild, during July, August and September; no special locality.

Croup. Fall and winter; sporadic; mild.

Diarrhoea and Dysentery. Summer months; largely prevalent.

Diphtheria. Very mild and few cases.

Malarial Fever. Quite general in South Providence, East Cranston and Johnston, although mild.

Typhoid Fever. About the same as usual until in the latter part of October and through November became epidemic; the cases have been very severe, tending to pneumonic complications.

Measles. Few cases.

Scarlatina. Occasional cases and nearly all followed by dropsy.

Whooping Cough. Average prevalence, but very mild and confined mostly to Johnston.

No other important disease largely epidemic.

Other diseases:

Inflammation and Congestion of Brain. Average prevalence; summer and fall.

Bronchitis. Large prevalence; winter and spring.

Erysipelas. Small number, only four or five cases.

Cerebro Spinal Meningitis. Average; extending through the year.

Pneumonia. Large from January to April.

Rheumatism. Average; during winter months.

Acute diseases of Stomach. Slight prevalence.

4. Of diseases that seem to be endemic or peculiar to localities, the malarial fevers beginning two years ago seem to be becoming such in parts of Johnston and Cranston.

5. No other diseases have had unusually large prevalence during the year.

6. The diseases that have been attended with unusual fatality are pneumonia and typhoid fever.

7. No particular circumstances have occurred during the year that seemed to indicate, in any unusual way, that scarlet fever, diphtheria or typhoid fever had been taken, or communicated from one person to another.

8. Have seen indications of some advance in public sentiment in regard to the importance of sanitary surroundings.

G. R. FISHER, M. D.

1. SMITHFIELD, JOHNSTON and GLOCESTER.

2. Taking sickness of all kinds, there has been about an average for the year, but most sickness during first and last quarters.

3. The following zymotic diseases have prevailed during the year:

Cholera Infantum. An average number; mostly mild.

Croup. But very little; no fatal cases.

Diarrhoea and Dysentery. Very little; average severity.

Diphtheria. About usual amount; none fatal.

Malarial Fever. A great deal; ten times more than ever before distributed throughout my circuit; severe.

Fever, Typhoid. Fully an average in amount; severe.

Whooping Cough. Had quite a large run, though confined to the immediate vicinity of Greenville.

No other important disease epidemic.

Diseases of common occurrence:

Inflammation and Congestion of Brain. But few cases; mild; cannot recall exact time.

Bronchitis. Full average March and April.

Erysipelas. Average prevalence.

Cerebro Spinal Meningitis. Small number.

Pneumonia. Large prevalence February, March and December.

Rheumatism. Average prevalence and severity.

Acute Diseases of Stomach. Average number.

4. No diseases that regularly appear every year, in any locality, that seem to be endemic or peculiar to that locality.

5. No diseases, not classed as zymotics, have had unusually large prevalence during the past year, except pneumonia.

6. No diseases have been attended with unusual fatality.

8. As to any advance in public sentiment or of individuals, in my circuit, in regard to the importance of sanitary surroundings, I think there exists a better feeling in this direction. My attention has been called to sanitary matters in individual cases, several times during the past year.

R. P. EDDY, M. D.

1. WOONSOCKET, NORTH SMITHFIELD and CUMBERLAND.

2. Taking sickness of all kinds, there has been less than usual in this circuit during the year.

3. The following zymotic diseases have prevailed during the year:

Cholera Infantum. Severe in July and August.

Diarrhœa and Dysentery. Severe in June, July, August and September, but sporadic.

Diphtheria. None or very few.

Malarial Fever. Several cases imported.

Typhoid Fever. Small prevalence; sporadic in September, October and November.

Small Pox. Three cases sporadic in July.

No other important disease epidemic, except bronchitis.

Of other diseases that occur usually during the year are:

Inflammation and Congestion of Brain. Some cases in my practice during the summer time.

Bronchitis. Epidemic in January, February and March.

Erysipelas. Some sporadic cases during the year.

Cerebro Spinal Meningitis. Five cases.

Pneumonia. Moderately prevalent during the spring.

Rheumatism. Some cases during the winter and spring.

Acute diseases of Stomach. A few cases during the year.

4. No diseases that seem to be endemic.

5. No disease, not classed as zymotic, has had unusually large prevalence during the past year, except bronchitis.

6. The only disease that has been attended with unusual fatality is cholera infantum.

7. No unusual circumstances have occurred within my observation or knowledge, that seemed to indicate that scarlet fever, diphtheria or typhoid fever had been taken, or communicated from one person to another.

8. Have seen no evidence of large advance in public sentiment or of individuals, in regard to the importance of sanitary surroundings; or increased interest in means of preventing diseases.

D. M. EDWARDS, M. D.

#### WASHINGTON COUNTY.

1. CHARLESTOWN and southerly half of RICHMOND.

2. Taking sickness of all kinds, there has been 10 per cent. *less* than the average of the past five years.

3. The following zymotic diseases have prevailed in this circuit during the year:

Diarrhœa and Dysentery. Only a few mild sporadic cases, mostly in August and September.

Diphtheria. An occasional mild case throughout year.

Malarial Fever. Epidemic; average; September, October, November; Carolina, Shannock and Clark's Mills.

Scarlatina. Epidemic; mild; July, August, Shannock and Clark's Mills.

No other important disease becoming epidemic.

Other forms of disease:

Bronchitis. Small prevalence, February, March.

Erysipelas. Average number, July, August.

Pneumonia. Average prevalence, January, February, March, December.

Rheumatism. Small prevalence, November, December.

4. No diseases that appear, in any locality, that seem to be endemic, except the malarial fevers as stated above.

5. No diseases, not classed as zymotics, have had unusually large prevalence during the year.

6. No diseases have been attended with unusual fatality.

7. No circumstances have occurred since last report, that seemed in any unusual way to indicate that scarlet fever, diphtheria or typhoid fever had been taken, or communicated from one person to another.

8. Nothing perceptible to show any advance in public sentiment or of individuals, in my circuit, in regard to the importance of sanitary surroundings; or increased interest in means of preventing diseases, and promoting individual and general health.

A. A. SANDERS, M. D.

1. HOPKINTON and RICHMOND.

2. Taking sickness of all kinds, there has been 25 per cent. less than usual in this circuit during the past year.

3. The following zymotic diseases have prevailed in this circuit during the year:

Cholera Infantum. Has been prevalent, sporadically, of average severity.

Croup. To some extent; spasmodic.

Diarrhœa and Dysentery. Have been of a mild grade, all ending in recovery.

Diphtheria. We have had diphtheritic sore throat but no true diphtheria.

Typhoid Fever. Less than usual and of a mild form.

Whooping Cough. Has been prevalent, but not epidemic.

No other disease epidemic.

Other diseases occurrence as follows:

Inflammation and Congestion of Brain. Small prevalence of congestion of the brain during the warm months.

Bronchitis. Has been quite prevalent, especially during the winter months.

Erysipelas. Hardly a case for the year.

Pneumonia. But few cases of this disease during the year.

Rheumatism. Subacute; prevailed in October, November and December; much more common than usual.

Acute diseases of Stomach. Prevailed to some extent during the summer months.

4. No diseases that regularly appear every year, in any locality in my circuit, that seem to be endemic or peculiar to that locality.

5. No diseases have had unusually large prevalence during the past year.

6. No diseases have been attended with unusual fatality.

7. Nothing new to indicate that scarlet fever, diphtheria or typhoid fever had been taken or communicated from one person to another.

8. Not much advance in public sentiment or of individuals, in my circuit, in regard to the importance of sanitary surroundings, or increased interest in means of preventing diseases.

E. P. CLARK, M. D.

1. WESTERLY.

2. Taking sickness of all kinds, there has been less than usual in this town during the past year.

3. The following zymotic diseases have prevailed during the year:

Cholera Infantum. Last of June and July, but less than usual.

Croup. Spring months; no epidemic.

Diarrhœa and Dysentery. Most in July and August; no epidemic.

Diphtheria. Sporadic cases all through the year.

Malarial Fever. Mostly in the early part of the summer with those that had been affected the year before, but much less than the last four years.

Typhoid Fever. Very little prevalence.

Measles. No epidemic.

Scarlatina. Sporadic; all through the year.

Whooping Cough. A few cases.

No important disease epidemic.

Other diseases:

Inflammation and Congestion of Brain. Mostly in children; of a serofulous diathesis; no particular time.

Bronchitis. Less than usual.

Erysipelas. In proportion to other sickness, there has been more than usual.

Pneumonia. Smaller prevalence than usual.

Rheumatism. About an average number.

4. As to diseases that seem to be endemic or peculiar to some locality, malaria, for the past four years; mostly along the course of the river, but not confined to that locality.

5. No diseases have had unusually large prevalence during the year.

6. No diseases have been attended with unusual fatality.

7. I think scarlet fever and diphtheria are contagious and infectious; typhoid fever almost always caused by impure water or imperfect drainage.

E. R. LEWIS, M. D.

1. WESTERLY.

2. Taking sickness of all kinds, there has been about the same as usual during the past year.

3. The following zymotic diseases have prevailed in this town during the year:

Cholera Infantum. Sporadic; severe.

Croup. Sporadic; spasmodic.

Diarrhœa and Dysentery. Ordinary prevalence; warm season.

Diphtheria. Large prevalence; epidemic; winter and spring, 1882.

Malarial Fever. Large prevalence; epidemic; in Stillmanville, caused as I think by keeping the water from the canal.

Typhoid Fever. Sporadic; small prevalence.

Measles. Average prevalence.

Scarlatina. Average prevalence; mild.

Whooping Cough. Small number.

No other important disease epidemic.

Other ordinary diseases:

Inflammation and Congestion of Brain. Average prevalence.

Bronchitis. Small prevalence.

Erysipelas. A few cases.

Pneumonia. Not a large number.

Rheumatism. About as many as usual.

Acute diseases of Stomach. Very few.

4. In regard to diseases that appear every year, in any locality, that seem to be endemic, malarial fevers, that for three or four years past have occurred in Stillmanville, might be considered such.

5. No diseases, not classed as zymotics, have had unusually large prevalence during the year.

6. No diseases have been attended with unusual fatality.

7. In regard to circumstances within my observation or knowledge, that seemed to indicate that scarlet fever, diphtheria or typhoid fever had been taken or communicated from one person to another, can say that scarlet fever, I am perfectly satisfied, is wholly contagious, and can bring strong testimony in support of my opinion, if such is requested.

8. There is an advance in public sentiment in regard to the importance of sanitary surroundings; much advance in White Rock and some in Stillmanville; my reasons are what I have seen.

*(Name not given).*

## REPORTS FROM TOWNS

*In relation to Sanitary Improvements.*

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It has been the purpose of the Secretary to keep well informed of all proceedings throughout the State, on the part of town or city councils, or any form of municipal authority, in the direction of improvements which have in view and seem to promise the promotion of the public health, by the abatement of nuisances, the removal of unsanitary conditions and surroundings, or by the introduction or establishment of public works, which may not only be of great public utility and convenience, but also serve in some measure, large or small, in the prevention of disease.

A connected history may thereby be secured, of all sanitary improvements of a public character in all parts of the State from year to year, and the gradual awakening of the citizens of the different towns to the necessity of sanitary public measures shown, and also whatever intelligent appreciation of such necessity, and whatever public spirit in existence in the towns there may be, as manifested by the readiness with which needed sanitary measures are adopted.

For this purpose a circular has been sent, at the close of every year, to each town and city clerk in the State, wherein various questions are submitted in relation to the proceedings of the respective town and city authorities, in the direction of general sanitation, during the preceding year.

The following is the form of circular sent at the close of the year 1882 :

### CIRCULAR S.

OFFICE OF SECRETARY OF THE STATE BOARD OF HEALTH.

PROVIDENCE, R. I., Jan. 1, 1883.

*To the Town Clerk :*

It is, by Statute law, made the duty of the Secretary of the State Board of Health, to make inquiries of the clerks of local boards of health, (town coun-

cils) in regard to the general health and sanitary condition of the towns, and also in regard to measures taken for the improvement of the same.

The law reads as follows:

#### PUBLIC STATUTES, CHAPTER 83.

SEC. 6. The Secretary of the said Board shall make inquiry from time to time, of the clerks of town and local boards of health, and practicing physicians in relation to the prevalence of any disease, or knowledge of any known or generally believed source of disease, or causes of general ill health; and also in relation to the proceedings of the said boards of health, in respect to acts for the promotion and protection of the public health, and also in relation to diseases among domestic animals, in their several towns and localities, respectively; and the said clerks of town and local boards of health, and said practicing physicians, shall give such information, in reply to said inquiries, of such facts and circumstances as have come to their knowledge.

*The Secretary therefore respectfully makes the following inquiries :*

1. Has there been, within your knowledge, any very fatal or very serious disease, that has prevailed largely in your town during the last year?
2. Have there been any cases of small pox in your town during the last year? If any, how many cases and how many deaths have come to your knowledge? Do you know the source from whence derived?
3. Has any widely spread or largely fatal disease occurred among domestic animals in your town during the year? If any, please give name of disease or diseases, locality and time of the year when prevalent.
4. Has any work for the promotion of public health, been contemplated, commenced or completed in your town, by the proper authorities of the town during the year? If any, please state what.
5. If by introduction of water for general use, please state from what source, how large the supply, and what proportion of the population by estimation, were supplied with the same at the end of the year.
6. If by sewerage, state what the aggregate length of sewers, whether of iron or brick, where emptying, and what proportion of population had drainage connection with them at the end of the year.

7. If by abatement of nuisances, or by improvement in heating or ventilating public buildings, halls, school houses, &c., or by drainage of water soaked ground around and beneath houses, or by compelling the removal of excreta, garbage, house refuse, &c., or for any other purpose. Please give terms and date of enactment of town ordinance, or send copy of same, and also state how far the ordinances have been enforced.

8. Has your town any legal board of health beside the town council? If so, please give the names of the officers of the same.

9. Do you have health officers in your town, responsible to town council, instead of an organized board of health? If so, please give names of said officers.

10. Has gratuitous vaccination been provided in your town during the past year?

Respectfully,

CHAS. H. FISHER,

*Sec. State Board of Health.*

N. B. The town clerk should charge a remunerative fee for replying to the above circular, and present to the town council, it being a service required by law.

## REPORTS FROM TOWN CLERKS

*In relation to the prevalence of disease, and of legal proceedings in regard to public sanitary improvements, and the promotion of public health.*

### BRISTOL COUNTY.

#### BRISTOL.

1. No very fatal or very serious disease that has prevailed largely in this town during the last year?

2. There was one case of small pox in the town during the year; the case was of mild grade and occurred in January, 1882. Do not know the source from whence derived.

3. No widely spread or largely fatal disease occurred among domestic animals in the town during the year.

4. No work for the promotion of public health has been contemplated by the proper authorities during the year, except as stated below.

5. At this time, January 1, 1883, water has been introduced from the Kickamuit river; has not been used for domestic purposes yet; supply will be very large.

6. There has been laid about three quarters of a mile of sewer, of brick and iron, for manufacturing purposes and private, emptying into Bristol harbor.

7. In regard to abatement of nuisances, or ventilating public buildings, halls, school houses, &c., or compelling the removal of excrete, garbage, house refuse, &c., or other purposes, that clause comes under the supervision of the health officer, and is regulated by an ordinance of the town (for the suppression and prevention of nuisances), enacted 1872; the town council require a rigid compliance of the same.

8. No legal board of health beside the town council.

9. There is a health officer in the town responsible to the town council; Phillip B. Bourn, health officer.

10. Gratuitous vaccination has been provided for in the town during the year.

H. F. BENNETT.

#### BARRINGTON.

1. There has not been any very fatal or very serious disease that has prevailed largely in this town during the last year. Malarial fevers have been less in number than last year and not so severe as a rule.

2. No cases of small pox during the year.

3. No widely spread or largely fatal disease among domestic animals in town during the year.

4. No work for the promotion of public health has been contemplated or completed in the town, by the proper authorities, during the year.

5. No introduction of water for general use.

6. No sewers have been laid.

7. No abatement of nuisances, or other sanitary public acts.

8. No legal board of health beside the town council.

9. No health officers in town.

10. No gratuitous vaccination has been provided in this town during the year

M. H. WOOD.

#### WARREN.

1. No very fatal or very serious disease has prevailed largely in this town during the last year.

2. No cases of small pox in the town during the year, to my knowledge.
3. The only wide spread disease that occurred among domestic animals in this town during the year was the pink eye among horses, about Thanksgiving, Christmas and New Year's.
4. No work for the promotion of public health commenced or completed in town, by the proper authorities of the town, during the year, except the introduction of water for general use.
5. Just completed the works for the introduction of the Kickamuit water; not generally introduced; supply ample and water good.
6. No sewers laid.
7. No acts in abatement of nuisances, compelling the removal of excretae, garbage, house refuse, &c., or for any other purpose.
8. No legal board of health beside the town council.
9. No health officers in town responsible to the town council.
10. No gratuitous vaccination has been provided in town during the year 1882; it has been in years before.

H. H. LUTHER.

## KENT COUNTY.

### COVENTRY.

1. There has not been, to my knowledge, any very fatal disease prevailing in the town during 1882.
2. No case of small pox during the last year has come to my knowledge.
3. No fatal disease among domestic animals.
4. No work for the promotion of public health has been contemplated, commenced or completed in the town, by the proper authorities of the town, during the year.
5. No introduction of water for general use.
6. No public sewers laid.
7. No action of the town council in abatement of nuisances, or by compelling the removal of excretae, garbage, house refuse, &c.
8. No legal board of health beside the town council.
9. No health officers appointed in the town responsible to town council or otherwise.
10. The town's alms-house physician is authorized to vaccinate all who desire vaccination, free of expense.

S. W. GRIFFIN.

## EAST GREENWICH.

1. No very serious disease has prevailed largely in the town during the last year.
2. No case of small pox.
3. No widely spread or largely fatal disease occurred among domestic animals in town during the year.
4. No work for the promotion of public health contemplated, commenced or completed in the town, by the proper authorities during the year.
5. No introduction of water for general use.
6. No public sewers laid.
7. No ordinance in abatement of nuisances.
8. No legal board of health beside the town council.
9. No health officers in town responsible to town council.
10. No gratuitous vaccination provided for in the town during the year 1882.

E. STANHOPE.

## WEST GREENWICH.

1. There has not been, within my knowledge, any very fatal or very serious disease that has prevailed largely in this town during the last year.
2. No cases of small pox in the town during the last year.
3. No unusual disease among domestic animals in the town during the year.
4. No work has seemed to be needed for the promotion of public health, by the proper authorities of the town during the year.
7. No abatement of nuisances or otherwise.
8. No legal board of health beside the town council.
9. No health officers in town responsible to town council or otherwise.
10. No gratuitous vaccination has been provided in the town during the year.

WM. N. SWEET.

## WARWICK.

1. I do not know of any very fatal or very serious disease, that has prevailed largely in this town during the last year.
2. No cases of small pox have occurred in the town during the last year.
3. No widely spread or largely fatal disease has occurred among domestic animals in the town during the year, to my knowledge.
4. No action of the town council in measures for the promotion of public health, contemplated, commenced or completed in this town during the year.

5. No introduction of water for general use.
7. No ordinance in abatement of nuisances.
8. No legal board of health beside the town council.
9. No health officers appointed in the town responsible to town council.
10. No gratuitous vaccination has been provided for in the town during the year.

R. HOYLE.

### NEWPORT COUNTY.

#### JAMESTOWN.

1. There has not been any very fatal or very serious disease, in this town during the last year.
2. No cases of small pox in the town during the year.
3. No widely spread or largely fatal disease occurred among domestic animals during the year.
4. No work for the promotion of public health.
5. No introduction of water for general use.
7. No action of town council in abatement of nuisances.
8. No legal board of health beside the town council.
9. No health officers in the town.
10. No gratuitous vaccination provided in this town since 1881.

J. E. WATSON.

#### LITTLE COMPTON.

1. No very fatal or very serious disease has prevailed largely in this town during the last year.
2. No cases of small pox during the last year.
3. No widely spread disease occurred among domestic animals during the year.
4. No work for the promotion of public health.
7. No action by town council in abatement of nuisances, or for any other sanitary purpose.
8. No legal board of health beside the town council.
9. No health officers in town responsible to town council, or any organized board.
10. Gratuitous vaccination has been provided for in this town during the year.

F. R. BROWNELL.

## MIDDLETOWN.

1. No fatal or epidemic disease to any great extent visited the inhabitants of Middletown in 1882; extraordinary healthiness has prevailed, and but a very few deaths occurred during last year.

2. No case of small pox was reported for the year 1882, nor for several consecutive years has there been one single case to my knowledge, among the people of Middletown.

3. I have heard of some deaths among swine in this town, not confined, however, to any particular time or locality, some occurred in the spring, some in the autumn; in some instances the cause of death was attributed to the kind of food fed to the swine.

4. No work particularly designed to promote the public health has been begun or carried on in this town during the past year.

5. No introduction of water for general use.

7. Nothing has been done in abatement of nuisances.

8. There is no local board of health in this town aside or distinct from the town council.

9. No health officers in the town.

10. No gratuitous vaccination provided for during the past year.

A. L. CHASE.

I have made answer to such of the interrogatories contained in your circular of the 1st inst., as call for any reply, by the existence of facts pertinent thereto, in the history of this town during the past year. Good health has blessed most of our citizens and the death rate has been lower than for several years prior to 1882. There is one matter, however, which each year grows in importance, as vitally concerning, not only the sanitary condition, but the general welfare of this town, to which I feel bound to allude. I refer to that peculiar traffic which bids fair to give us an unenviable notoriety, the bringing of large quantities of house offal and swill from Newport and feeding it to swine kept in enclosures on several of the farms in Middletown, lying near to Newport limits. By Section 9, of Chapter 78, of the Public Statutes, persons are restricted to such places as shall be designated by the town council of any town, for carrying on this traffic. A number of such places were designated by the town council of Middletown in 1879, and afterwards the right to use said places for such purposes was revoked. During the summer of 1882 the law was openly defied and many pursued this illegal business. In consequence of the effluvia arising from these pens, stored and fed with animal and vegetable matter, often highly decomposed, some families were made sick, and of one it may be said that its members have not yet fully recovered from the poisonous effects of this effluvia. In this particular case the town council was applied to by petition for relief from the nuisance, but the applicants obtained little redress, owing to lack of an aggressive policy on the part of the council. It is a matter of surprise that more ill-health

was not the lot of our people, considering the extent of this swill traffic. At any rate it menaces the health of our citizens and may yet, under possible conditions, be the source of deadly diseases in our midst. Many of the swine fed on this questionable food have died, which would seem to indicate its unsuitableness as a commodity for making sound pork, about which there is already much suspicion.

A. L. C.

#### NEW SHOREHAM.

1. There has been no very fatal or very serious disease that has prevailed largely in this town during the last year.

2. No cases of small pox during the year.

3. There has been no widely spread or largely fatal disease among domestic animals during the year.

4. No action has been taken by the town authorities for the promotion of public health in the town during the year, except as stated in reply to No. 7.

6. No public sewers laid.

7. There has been an ordinance passed by the town council that there shall be no fish offal within certain distances from the highway.

8. No legal board of health beside the town council.

9. The health officer in this town, responsible to town council, is Dr. C. H. Hadley.

10. Gratuitous vaccination has been provided in this town during the past year.

A. N. ROSE.

#### PORTSMOUTH.

1. More than half the cases of mortality reported to the town clerk, during the past year, were from dysentery, which disease was quite prevalent in our town during the past summer.

2. No cases of small pox in this town during the last year have come to my knowledge.

3. No widely spread disease occurred among domestic animals during the year, to my knowledge.

4. Nothing in particular done for the promotion of public health, in fact nothing.

7. No abatement of nuisances of any kind.

8. No legal board of health beside the town council.

9. No health officers appointed in this town.

10. No gratuitous vaccination has been provided in the town during the past year.

P. B. CHASE.

## TIVERTON.

1. No very serious disease has prevailed largely in this town during the last year.
2. No cases of small pox during the year.
3. No largely fatal disease occurred among domestic animals.
4. Nothing has been done for the promotion of public health, by the proper authorities of the town during the year.
7. No action in abatement of nuisances.
8. No legal board of health beside the town council.
9. No health officers in the town, except as above.
10. Gratuitous vaccination has been provided for during the year.

G. N. DURFEE.

## NEWPORT.

The following extract from Mayor Franklin's inaugural address, will serve to show the opinion of at least one of the officials of Newport, in regard to the establishment of a city Board of Health.

## SANITARY.

While we are to be congratulated upon our water supply, ample for the needs of the community, yet with the increased consumption the question naturally arises, "What shall be done with the refuse?" This brings us to the question of sewerage, and while I am not prepared at this time to recommend any particular plan, I am desirous that one may be adopted by which the sewage of our city may be disposed of efficiently and economically. In the furtherance of this much needed matter you will have my coöperation. In connection with this matter is another of vital importance; I refer to our sanitary condition.

Noted as Newport is for the salubrity of its climate and natural attractions, drawing to her shores yearly thousands of people from all parts of the Union, and even beyond the seas," it becomes us who have her welfare at heart to see that the sanitary condition is as nearly perfect as possible.

To this end, while I would not derogate from those who have formerly had this important trust, I would recommend the formation of a Board of Health, composed of gentlemen interested in the welfare of our city, who have given to this subject thought and attention; who should have the regulating of all matters pertaining to our sanitary arrangements.

As much of the future health and prosperity of our city depends upon how we dispose of these questions, may I not bespeak for them your early and earnest attention?

In the failure of the city clerk of Newport to reply to the circular of inquiries, the following report, of a vigorous and somewhat neces-

sarily aggressive and voluntarily independent association of spirited citizens of that city, for the better promotion of sanitary work, and thereby better accomplishment of sanitary protection, will be of interest as affording an account of the progress of sanitation in that city, and also as an example of what may be done by volunteer associations of intelligent citizens in other localities.

ANNUAL REPORT OF THE SANITARY PROTECTION ASSOCIATION OF NEWPORT, R. I.,  
*For 1881-82.*

The following report of the condition and work of this Association was presented at its annual meeting:

During the year 1881-82 there has been a continuation of that marked change in the public sentiment regarding sanitary needs which is the confessed result of the establishment of the association. There have been accessions of many new members, and inspections of a long series of premises that had, and that had not, been previously examined. The recommendations of your inspecting officers are now, almost without exception, gladly received and carried into immediate effect, and there is reason to believe that many houses have thus been rendered more healthy, and the families of members preserved from much obscure disease, otherwise unavoidable.

The monthly meetings of the council have been regularly held, and there have been frequent and important discussions of the faulty conditions, in plumbing and drainage, discovered by the house inspections. In two instances these have resulted in formulæ being determined upon for observance in every household, and they have been directed to be added to the list of questions propounded to the owners and occupants of dwelling houses, in the "Circular Letter No. 1" of the association. They are as follows:

b<sup>1</sup> (Adopted June 13th, 1882):—"Is there direct connection, for cooking and table use, where city water is employed, between the main and the kitchen?"

g<sup>1</sup> (Adopted September 13th, 1881):—"Is provision made for ventilation of the interior space of the water closet, by a current of air flowing through the same to a ventilating pipe or flue, passing above the house top and independent of the soil pipe or its extension?"

It is gratifying to be able to state that the new medical society, established during the past year by the physicians of Newport, is interesting itself in sanitary subjects. The purity of the bovine vaccine matter, now so universally employed, has already received its attention, and it has under consideration at the present moment, the almost indiscriminate and public sale of poisons, such as arsenic, morphine and the like, in violation of an existing statute, and also the necessity of having the important office of coroner filled by persons with a reasonable knowledge of the intricate questions that at any moment are likely to come before them.

Since the last annual meeting there have occurred four matters of especial interest to the association. They are:

The house to house survey of the city under the joint auspices of the National Board of Health and the association;

The localized epidemic of small-pox in January, February and March;

The election by the people of a "reform" mayor, and

The acquirement by the Newport waterworks, under a recent act of the Assembly, of the Hanging Rock pond, by which not only is a large accessory supply of water gained for the city, but an opportunity rendered possible for those radical measures for the improvement of the water itself which it had become necessary for the association to advise should be made, in consequence of its own analyses and those of the National Board of Health.

To each of these topics, which have been detailed at length in the monthly reports of the meetings, brief allusion will now be made.

In a previous year, the occurrence of small-pox at Fall River, happily prevented by the Board of Health of that city from extension beyond its limits, had seemed to your council a danger of such importance as to warrant their calling the attention of the city authorities of Newport to the necessity of providing against the possible appearance of the disease in this city, by enforcement of the State ordinance relative to vaccination, which, in a time of apparent security, it was found had been disregarded. Your warning was unheeded, and the general small-pox epidemic of 1882 found Newport wholly unprepared. Some six or seven cases occurred, of which three, or nearly one-half, a large relative mortality, were fatal.

The belief generally obtained that there had been laxity on the part of the mayor and aldermen as a board of health, possibly not intentional, but through want of knowledge how to meet the emergency.

It was held that there had not been that general vaccination, isolation of the sick, and disinfection of tainted premises that are now thought essential, and that the three lives lost, of men in the prime of life, heads of families, and in every way good citizens, was a fearful price for the city to pay to official apathy and indifference.

It is not improbable that this feeling had something to do with the removal of the mayor at the ensuing election, Mr. Franklin, the present incumbent, being thought to be in harmony with a less obstructive, wrongly called conservative, public sentiment, and therefore selected by those who desire an orderly, decent and healthy city.

During the previous two years the city council had thrown all the odium of their inactivity, if not their negligence, upon his Honor, Mayor Slocum. It remains to be seen how cordial a support these same gentlemen, whose personnel has hardly been changed, will give Mayor Slocum's successor in matters affecting the public health.

So far from lessening their official dignity by so doing, in no more certain way could they retain the support of their constituents.

Since the first introduction of the water of Easton's pond into the city, it has been evident that the quality of the water, while excellent in most respects, was not unexceptionable, there being present at all times, but especially in the warm months of the year, an excess of vegetable matter in a more or less advanced stage of decomposition. From the necessities of the case the pond as at present existing is shallow, the water quickly warms by the sun, fresh water algæ grow with rapidity, and late in the season in large quantities decay. And besides, though the pond bed is of sand, there exists in one portion of it a deposit of

mud, which must eventually be removed. The former proprietor of the works, Mr. George H. Norman, a member of this association, and subsequently his successors, the water company, have shown every desire to improve the quality of the water, and have courteously received the suggestions made to them from time to time by your council, to whose approval of the city water as compared with the Newport wells, the progressive disuse of the latter is in great measure to be attributed. It has been impossible until now for the water company to make such changes as had been indicated, as it would not have been safe to shut off the supply of the city from Easton's pond until another, to take its place, had been provided.

This has now been effected, under the act of the Assembly, through a hearing before the Supreme Court, whereat it was shown that the necessities of the city required an additional and purer source of supply. It is more than likely that the evidence afforded at the hearing upon both these points, on behalf of this association, had its weight with the court.

Through the decision rendered, a second, deeper and colder pond is now under construction at the Hanging Rock, connected with the city by a separate main, and with a capacity of one hundred million gallons, and there is reason to expect that the water supply of Newport will soon be beyond all cavil.

The house to house survey of the city, made by the National Board of Health, at the request of this association, and at the expense of its members, resulted in one respect unexpectedly.

The survey was in part undertaken to prove the correctness, which had been denied, of the assertion by your council that there were sources of serious danger to the public health in Newport. It proved not only that such was the case, but that these dangers had been under-estimated even by those most familiar with the facts, and that others existed of which even they had no conception. The surveys were conducted with great thoroughness, by Mr. Bowditch, of Boston, and his assistants, and many photographs were taken of faulty plumbing work and bad hygienic surroundings. It was supposed by the council that in accordance with the terms made between it and the National Board, the report would be published immediately upon its completion. Several months, however, have elapsed since the report was said to have been rendered. Meanwhile the council have been requested by the National Board to temporarily withhold from publicity the series of analyses, more than seventy in number, of the city and well waters of Newport, made during the progress of the survey, an authenticated copy of which has come into their possession, possibly upon the ground that it would be more proper that their original publication should be made by the National Board itself, officially, and at Washington.

A large mass of material of many kinds, bearing upon the public and private sanitation of Newport, was collected by the inspectors during the survey, and it was understood by your council that a duplicate copy of all this various evidence was to be placed in their custody for the purposes of the association. It has been thought that the delay, till of late, of the National Board has been owing in part to the call that the small pox epidemic had made upon its energies, to a fear lest official statement of the real sanitary condition of Newport might wound the sensibilities of some of its citizens, and to alarm expressed by the waterworks company lest the character of their supply would be irretrievably

injured if the truth were fully told. Two of these reasons, however, no longer exist, and the third is not well founded.

In a recent report by its inspectors upon the sanitary condition of the city of Philadelphia, the National Board has not hesitated to state in detail the very great evils there existing, a knowledge of which must ever precede their removal.

It is most probable, therefore, that the report of the Newport survey has been merely awaiting its turn upon the file of papers of the National Board for publication; especially since there is reason to believe that a weekly series of analyses of the city water have since been continuously made under its direction, in verification of those at first rendered to the National Board by its own analyst, and corroborative of the monthly ones regularly sent to the council by the analyst of the association.

Unfortunately, within the last ten days, a copy of the following circular has been received from the National Board:—"Washington, D. C., July 1st, 1882. Insufficient provision having been made in the Sundry Civil Appropriation Bill for the year ending June 30th, 1883, for the proper continuance of the duties of the National Board of Health, you are respectfully notified that the publication of the bulletin," and presumably the other publications of the board, "will be at once suspended should the bill pass as reported to the House."

In view of all these circumstances it remains for the association to take such action concerning the whole matter as may seem most desirable for the public good. Possibly it may decide to ask from the National Board the copy of the report, and the accompanying evidence, to which it is entitled by the compact that was made, and to entrust the further consideration of the subject to the discretion of the council of the association.

Newport, July 11th, 1882.

JOHN P. CURLEY, M. D., *Rec. Sec.*

## PROVIDENCE COUNTY.

### BURRILLVILLE.

1. There has been no very fatal disease that has prevailed largely in this town during the last year.
2. No cases of small pox in town during the last year, have come to my knowledge.
3. No widely spread or largely fatal disease among domestic animals during the year.
4. No particular work for the promotion of public health has been contemplated or completed in the town by the proper authorities of the town during the year.
5. No introduction of water for general household use.
7. No action of town authorities in abatement of nuisances, or improvement in heating or ventilating halls, school houses, &c., or compelling the removal of excreta, garbage, house refuse, &c.
8. No legal board of health beside the town council.

9. No health officers in this town responsible to town council or otherwise.
10. No gratuitous vaccination has been provided in this town during the past year.

A. MOWRY.

CUMBERLAND.

1. I have not known of any very serious disease that has prevailed largely in this town during the last year, excepting malaria to some extent; no cases fatal to my knowledge.
2. No cases of small pox during the last year.
3. No particular disease occurred among domestic animals in town during the year, to my knowledge.
4. No council work for the promotion of public health during the year.
5. No large introduction of water for general use; Valley Falls and Lonsdale supplied in part by Abbot Run water from Pawtucket mains; there were laid in this division, in 1882, 400 feet of 16-inch water pipe, 509 feet of 6-inch water pipe; 325 feet of 4-inch water pipe and 205 feet of 2-inch water pipe.
6. No sewers laid at public expense.
7. No ordinances passed in abatement of nuisances, or improvement in heating or ventilating school houses, &c., or compelling the removal of excrement, garbage, house refuse, &c.
8. No legal board of health beside the town council.
9. The health officers in this town, responsible to town council, are Drs. H. W. Stillman, G. B. Haines and L. F. C. Garvin.
10. Gratuitous vaccination has been provided in this town during the past year.

H. A. FOLLETT.

FOSTER.

1. No very serious disease has prevailed largely in this town during the last year.
2. No cases of small pox during the year.
3. No serious disease occurred among domestic animals in the town during the year.
4. No work for the promotion of public health has been contemplated by the proper authorities of the town during the year.
7. No legal action in abatement of nuisances.
8. No legal board of health beside the town council.
9. No health officers in the town.

10. No gratuitous vaccination was provided in the town during the year 1882, but was provided in the year 1881.

L. HOWARD.

GLOCESTER.

1. No very fatal disease has prevailed largely in this town during the last year.

2. No cases of small pox during the year.

3. No largely fatal disease occurred among domestic animals during the year.

4. No work for the promotion of public health has been contemplated by the proper authorities of the town during the year.

7. One or two nuisances have been abated by health officer, otherwise nothing.

8. No legal board of health beside the town council.

9. There is a health officer in this town, responsible to the town council. Richard Barnes, health officer.

10. Gratuitous vaccination has been provided for in this town during the past year.

C. W. FARNUM.

JOHNSTON.

1. There have been no very fatal or very serious diseases that have prevailed largely in this town during the last year, except malarial fevers and typhoid fevers.

2. No cases of small pox in town during the year.

3. No widely spread disease occurred among domestic animals during the year.

4. No work for the promotion of public health has been contemplated by the proper authorities of the town during the year.

5. Pawtuxet water is introduced in Olneyville, but not much extended last year.

6. No sewers have been laid.

7. No abatement of nuisances, or improvement in heating or ventilating public buildings, halls, school houses, &c., or by drainage, removal of excretæ, garbage, house refuse, &c.

8. No legal board of health beside the town council.

9. We have health officers in town, responsible to town council. They are Dr. C. A. Barnard and Wm. A. Carroll.

10. Gratuitous vaccination has not been provided throughout the town dur-

ing the past year, but the town has paid bills for vaccination amounting to \$72.00.

W. S. BROWNELL.

LINCOLN.

1. I do not know of any very fatal or very serious disease that has prevailed largely in this town during the last year.

2. No cases of small pox in town during the last year.

3. No widely spread disease occurred among domestic animals during the year.

4. No unusual work for the promotion of public health has been contemplated by the proper authorities of the town during the year.

5. Central Falls is supplied with Abbott Run water, from the town of Pawtucket; about nine-tenths of population of the village supplied; over one and one-half miles of pipe laid.

6. No sewers laid.

7. Nothing done in abatement of nuisances, or improvement in heating or ventilating public buildings, halls, school houses, &c., or by compelling the removal of excrement, garbage, house refuse, &c.

8. No legal board of health beside the town council.

9. Health officers have been appointed in the town, responsible to town council. (Health officers names not reported.)

10. No gratuitous vaccination has been provided in this town during the past year.

W. H. GOODING.

NORTH SMITHFIELD.

1. No very serious disease has prevailed largely in the town during the last year.

2. No cases of small pox during the year.

3. No fatal disease occurred among domestic animals during the year.

4. No work done for the promotion of public health, by the authorities of the town during the year.

7. No abatement of nuisances.

8. No legal board of health beside the town council.

9. No health officers in the town.

10. Free vaccination for the year ending May 1st, 1882.

B. A. ANDREWS.

NORTH PROVIDENCE.

1. No very fatal disease, has prevailed largely in this town during the last year.

2. No cases of small pox during the year have come to my knowledge.
3. No largely fatal disease has occurred among domestic animals.
4. No work for the promotion of public health by the proper authorities of the town during the year.
5. No introduction of water for general use.
6. No sewers.
7. No abatement of nuisances.
8. No legal board of health beside the town council.
9. Have no health officers.
10. Drs. Budlong and Barnard were appointed to vaccinate the inhabitants of the town the past year, by order of the council, when 356 were vaccinated, there having been no free vaccination since 1878.

T. H. ANGELL.

PAWTUCKET.

1. There has been no very serious or fatal disease largely prevailing in this town during the year 1882.
2. No cases of small pox.
3. No disease of consequence among domestic animals; pink eye, among horses, to some extent.
4. All action taken in the direction of maintaining public health only as stated below.

5. In regard to water supply for general use, the Water Commissioners say: "The source of our water supply has been severely tested during the extreme drouth of the past season, but gave assurance of being capable of giving a much larger quantity.

"During the year we have extended the mains for the accommodation of the public to such points as the revenue from such extensions would warrant. There are several petitions and applications now in this office for extensions, but the appropriations made being nearly exhausted, we were unable to grant the requests.

"The new pumping station is nearly finished, and is now ready to receive the machinery as soon as the weather will permit.

"Four hundred services have been added to the works during the year, making a total of 3079."

From the superintendent's report for 1882, the following extracts are made:

"As to the source of supply, it has been proved by the season of 1882 to be equal in quantity to our needs for a long time to come, or at least until our consumption of water is much larger than at present.

"The plant of pipe has been increased by a total of extensions in all the divisions of a little over four miles, making about eighty miles of supply pipe under pressure of from 65 to 125 pounds.

## "HYDRANTS.

"Six new hydrants have been added in the Pawtucket division, six on the Central Falls division, four on the East Providence division, and one on the Lonsdale and Valley Falls division which, added to 561 in service one year ago, makes 578. Street hydrants for use in case of fire, and supposed to be in order for effective service at all times, being examined twice a year, and any imperfection in the working receiving immediate attention.

## "DRINKING FOUNTAINS.

"One has been placed at Saylesville, one on Prospect Hill, and one on Broad street in Valley Falls, 'Lincoln side,' making seven on that division in all, and one has been set near the junction of the old Boston and Newport road with the Pawtucket road on the East Providence division, a total now of twenty-one connected with the works.

## "SERVICES.

"A total of 400 new services made during the year: Pawtucket has 185, Central Falls 71, East Providence 78, Lonsdale and Valley Falls 66, giving us at this time 3131 applications and 3079 services made.

"When the new pumping facilities are completed and all in working order, I should recommend that the reservoir basin be drawn off and thoroughly cleaned of all sediment that has accumulated, before the warmest weather overtakes us, as this will give us a larger storage capacity, and place us in better condition than ever before in regard to purity, as all the water pumped will be filtered, and with the sediment and debris removed from the reservoir, our water will be practically pure.

"Speaking of the works as a whole, it can be said that they are in a prosperous condition, steadily gaining in magnitude and favor and bespeak for themselves confidence for protection from fire; ability to provide by their revenue for interest on all indebtedness they have incurred, and above and beyond all this, afford the great boon of pure water at a smaller expense to the consumer than but few places can boast.

"The call for main pipe in locations where it is needed, is greater than a year ago. Appropriations for extension in the Pawtucket and in the Lonsdale and Valley Falls division should be made in justice to parties desiring to patronize the works, and for the best interest of all concerned."

6. No system of public sewers; plans for the same have been drawn, but no work done in construction.

7. There have been no new ordinances under this head passed by the town council during 1882; some nuisances have, however, been abated, and other sanitary work done through the year under the following ordinances now in force:

## AN ORDINANCE FOR THE SUPPRESSION AND PREVENTION OF NUISANCES.

*It is ordained by the Town Council of the Town of Pawtucket as follows:*

SECTION 1. Any person causing or suffering filthy water to collect on his premises, or premises occupied by him, so as to be prejudicial to health, or causing or suffering the same to run into any public street or highway in this town, and not remedying the same within twenty-four hours after notice from any health officer; and any person who shall throw any coal ashes, cinders, shavings, filth or rubbish, into any of the streets or highways of said town, except under the direction of the commissioners of highways, or who shall in any way carry the contents of any sink, cesspool or privy in or through any of said streets or highways, after the time of daylight in the morning, or before nine of the clock in the evening, except by permission of the board of health, or at any time remove or carry the contents of any sink, cesspool or privy in any vessel whatever, unless said vessel is so constructed as not to scatter or leak the contents, shall be fined not less than three dollars nor more than ten dollars; provided, that parties having sealed tubs may be allowed to remove the contents of cesspools and privy vaults in sealed tubs in the day time, by the consent and under the direction of a health officer.

SEC. 2. It shall be the duty of the health officers of this town to examine into the state and condition of every place and part of said town where such officers shall suspect or be informed that there exists any matter or thing which is or may become injurious to the health of the inhabitants thereof.

SEC. 3. Whenever it shall appear to the satisfaction of any health officer that there exists upon any premises owned or occupied by any person any filth or offal, or any animal or vegetable matter, or the contents of any hog-pen, cow-yard, barn, privy, drain or vault, injurious to the health of the neighborhood, it shall be the duty of such health officer to cause the owner or occupant of such premises to be notified in writing of the existence of such nuisance or annoyance, and to direct such owners or occupants forthwith to remove or abate the same; and if such nuisance or annoyance shall not be abated within twenty-four hours after such notice, such owners or occupants shall, for each and every day they shall suffer such nuisance or annoyance to remain after the notice aforesaid, be liable to pay a fine of not less than five dollars nor more than twenty dollars.

SEC. 4. If such nuisance or annoyance shall not be abated by the owners or occupants of the premises where such nuisance or annoyance exists, at or before the expiration of the notice mentioned in the next preceding section of this ordinance, and if in the opinion of such health officer the expenses of abating the same will not exceed the sum of ten dollars, then it shall be the duty of such health officer to authorize in writing the sheriff of said county, his deputies, or the town sergeant, or either of the constables or police officers of said town, forthwith to cause such nuisance or annoyance to be abated. And the town council shall order the expenses thereof, not exceeding ten dollars, to be paid out of the town treasury of said town to the officer abating the same, which said expenses, so paid as aforesaid, shall be recovered from the party causing or continuing said nuisance or annoyance, in an action of debt in the name of the town treasurer of said town, before any court of competent jurisdiction.

SEC. 5. Whenever it shall appear to the satisfaction of any health officer that there exists upon the premises owned or occupied by any person any matter or thing injurious to the health of the inhabitants of any part of the town, or which, in his judgment, may originate or conduce to the spreading of any infectious or contagious disease, and that the expense of abating such nuisance or other cause dangerous to health shall be estimated at more than ten dollars, it shall be the duty of such health officer, as soon as the exigency of the case shall reasonably require, to report the same in writing to the town council, setting forth the particulars of such nuisance and the probable expense of removing the same, as nearly as may be, and the owner or occupant of the premises upon which such nuisance or nuisances exist, or the person who may have caused, continued or permitted the said nuisance or nuisances, shall be forthwith notified to appear before the town council, at such time as the council shall appoint, to show cause, if any, why such nuisance shall not be abated or removed. And said council, upon satisfactory evidence to them submitted that said nuisance exists, may order the sheriff of said county, his deputies, or the town sergeant, or either of the constables or police officers of said town, forthwith to abate the same, and the expenses thereof shall be paid out of the town treasury, and be recovered from the party causing or continuing the same in the same manner as is prescribed in the next preceding section of this ordinance.

AN ORDINANCE PROVIDING FOR THE APPOINTMENT OF HEALTH OFFICERS AND  
PRESCRIBING THEIR DUTIES.

*It is ordained by the Town Council of the town of Pawtucket as follows:*

SECTION 1. There shall be annually appointed by the town council, three or more health officers for said town, one of whom shall be a practicing physician, who shall hold office for one year and until their successors are appointed and qualified, and they shall be paid their necessary expenses, and such sum for their services as the council shall determine.

SEC. 2. Said health officers and each of them shall see that the statutes of the state and the ordinances of the town respecting nuisances injurious to health, and that the special orders of the town council made from time to time sitting as a board of health, are duly enforced, and they shall report to the council for its action as a board of health, all such matters as in their opinion may require its action.

8. No legal board of health beside the town council.

9. The health officers, acting under the direction of the town council for 1882, were G. H. Stanley, M. D., and S. S. Tompkins.

10. Gratuitous vaccination has not been provided for during 1882.

PROVIDENCE CITY.

1. See medical report of Providence city.

2. One case only of small pox during the last year, occurred on board vessel hailing from Baltimore, Maryland.

3. No widely spread or largely fatal disease occurred among domestic animals except pink eye in horses.

4. The preservation of the health of the city has been a topic of consideration frequently in the meetings of the board of aldermen and the city council. In September the city council, directed by resolution, that the city engineer should report plans of main intercepting sewers, by which the sewage of the city, with the exception of the eastern border might be carried below Fields Point before emptying in the river. The engineer has given the question a very considerable amount of attention and will report as soon as the best methods can be ascertained and the probable costs estimated.

5. The extension of main pipes for the Pawtuxet water has continued, and at least nine-tenths of the population of the city are supplied by it. A new pumping engine has been placed at Pettaconset, the original pumping forces having been found insufficient for present needs. Further notice will be found in appended papers.

6. See appended papers.

7. See appended papers.

8. The board of aldermen is the legal board of health in Providence.

9. There is a superintendent of health elected at general municipal election and responsible to the board of aldermen. The present incumbent, Dr. E. M. Snow, has occupied the position about twenty-seven years.

10. Gratuitous vaccination provided at City Hall every Saturday, with short vacation during the heat of summer.

The following extracts from the inaugural address of Mayor William S. Hayward, delivered Jan. 1, 1883, will present an account of some of the sanitary work accomplished and in progress during the year 1882.

#### “ WATER WORKS.

“The new pumping engine and station at Pettaconset, contracted for and commenced in June, 1881, was completed in the spring of last year, at a cost of \$100,000. At the test made at that time, the engine developed the high degree of efficiency promised by the builder, and has, since April last, furnished the entire water supply of the city. The misgivings felt concerning the possible results arising from any accident to the pumping machinery which has been heretofore solely relied upon, are relieved thereby, and the danger of any discontinuance of a bountiful supply of pure water is thus reduced to the minimum.

“The length of pipe of various sizes, laid under the direction of the board of public works during 1882, was greater than for some years past, being nearly double that of the previous year, and aggregating 7.16 miles, making a total of 167.27 miles of pipe laid since the introduction of water.

“About eight miles of this amount has been laid in the adjoining towns of Cranston and Johnston.

“The maximum daily consumption of water reached during the past year was 7,321,000 gallons.

"The average daily consumption during the summer months of the last six years is shown by the following:—1877, 2,871,000; 1878, 3,295,000; 1879, 3,596,000; 1880, 4,385,000; 1881, 4,109,628; 1882, 4,610,000.

"The water supply for the elevated portion of the tenth ward received the attention of the city council of last year, and the city engineer has reported plans and specifications for the construction of reservoirs in two localities, either of which would make ample provision for supplying the district. The difference of cost is largely in favor of the Fruit Hill plan, to which may be added the further advantage, that by the adoption of this plan, the mains, leading from the high service station, by which the reservoir would eventually receive its supply, may immediately be utilized, when laid, for supplying the district, before the system is fully carried out, and that section of the city secure a temporary relief, until such time as the city council shall deem it expedient to order the construction of the reservoir itself, when these mains could be used for the purpose originally designed.

"For such reasons the plan referred to is rendered obviously preferable to that of any other thus far presented, and in view of its probable adoption in the future the site for the reservoir should be secured without delay.

"A proposition to build a large storage reservoir at Poneganset, in Scituate, is being considered by various owners of water privileges on the Pawtuxet river, and it is claimed that a great advantage would accrue to the city therefrom, in the increased purity of the water in time of severe drouth, which would be obtained by reason of the greater volume and rapidity of the current resulting from the daily liberation of a portion of its contents. On this account it has been proposed to request the city to undertake a share of the expense. As the consideration of no expedient tending to increase or maintain the purity of the water we consume should be neglected, the subject, if presented, should receive your attention.

#### "SEWERS.

"More sewer work has been ordered by the city council during the past year than for many years previous. There have been completed 1.572 miles, making the total length of sewers constructed since the establishment of the present system, 45.804 miles.

"Of those commenced during the past summer and autumn the extension of the Pitman street sewer and the storm sewer in Thurber's avenue are the most important. The former, constructed at a cost of \$13,407.63, has been long demanded by the residents of that section. The sewer has now been extended the entire length of Pitman street and across land, the right of way through which having been purchased for that purpose, to the deep water of the Seekonk river.

"The storm sewer in Thurber's avenue, fourteen hundred feet in length, the estimated cost of which was \$13,920.28, was begun late in the past autumn and was designed to relieve that section of the city from serious annoyance experienced there by reason of overflow of surface water, which has heretofore been a source of large expense to the city in the payment of damages.

"No action has been taken by the city council in relation to laying out, declaring and accepting certain streets as public highways, upon which the con-

struction of sewers for the relief of the Pearl street district is made to depend, and to which reference was made in my last inaugural address. The necessity for some action in the matter, therefore, remains as pressing as at that time.

"The question of the proper disposition of the sewage of this city, so vital in its importance to the future comfort and health of its inhabitants, has been presented with unusual force during the past summer by the increasingly offensive condition of the Cove and rivers emptying into it.

"The city council by a resolution, approved September 15, last, directed the city engineer 'to report plans of the main intercepting sewers and of any other works necessary for collecting, conducting and disposing of the sewage of this city in accordance with the best approved methods, with the estimated cost thereof.' The subject demands the most thoughtful attention of the city council. Notwithstanding the urgent need of the adoption of some plan of relief, a consideration of the great expense, involved in the matter, should prevent the city council from taking final action thereon, until the most thorough investigation of the existing conditions, upon which a wise choice of the proper method to be used must largely depend, has been made, and sufficient opportunity has been afforded to consult the best sources of information upon the subject, and examine those systems, the efficiency of which the experience of cities in this country and abroad has practically tested.

"The city engineer has entered upon and already made some advancement in the work of preparing plans for the same, and purposes during the ensuing spring and summer to carry on a series of experiments, which will undoubtedly afford much assistance in the solution of this weighty problem.

#### " PUBLIC PARKS.

"The importance of public parks as a source of recreation and healthful enjoyment is more deeply realized in proportion to the growth of every city.

"The city of Providence is extremely fortunate in the possession of a park unsurpassed in the attractiveness of its natural features and admitting of the development of great beauty under the hand of the landscape gardener, without the expenditure of the vast amounts which have been lavished upon the parks of other cities.

"Roger Williams Park, which, at its first establishment, eight years ago, scarcely served for more than the butt of a passing joke, and was believed, on account of its isolation, destined to remain in its wild and uncared for state, never visited except in a perfunctory manner by the committee to whom the charge of its interests had been delegated by the city council, has become a most popular resort of our citizens, and during the past year its numerous attractions have been enjoyed by upwards of three hundred thousand people.

"An object of so great interest and real advantage to so large numbers of the residents of this city, should not be permitted to halt in its march of improvement, and I would recommend that the appropriation for this department be as liberal as a consistent economy will permit. The amount annually appropriated and hitherto fixed at \$7,500, is more and more demanded for the care and maintenance of those additions, which have been made during previous years. To carry out the original plan for the development of the park requires that the appropriation therefor be increased.

"The construction of a boulevard from Broad street to connect Roger Williams Park with the Field's Point farm has been considered by former park committees, but has not thus far received attention of the city council. There can be no more favorable opportunity for undertaking this most desirable improvement than the present year affords.

"No arrangements have been made relative to straightening the boundary lines at the westerly end of the park, as recommended in my annual message of last year, and the necessity for such an adjustment still remains.

"The park is again indebted to our public spirited fellow-citizen, Clark Dalrymple, Esq., for another substantial evidence of his deep interest in its prosperity and genuine appreciation of the benefits to be derived therefrom, in his presentation to the city of a beautiful summer house, which has been located upon the south bank of Crystal Lake.

"The popular favor in which the smaller parks throughout the city are held is not diminished, and great interest is manifested in their proper care and preservation.

#### "HEALTH.

"The public health during the past year has been excellent, with the exception of the last three months, when typhoid fever prevailed to a somewhat alarming extent, although the number of cases reported to have occurred throughout the city was greatly exaggerated. The epidemic has been attributed to innumerable causes, among which may be mentioned the alleged unhealthful condition of the cove basin and rivers emptying into it, and the influence of the low marshy lands surrounding and adjacent to the large ponds in the western section of the city.

"The best medical authorities, however, have not been able to determine upon any one cause, sufficient to explain the wide prevalence of the disease, visiting as it did with equal severity both the towns adjacent to and at a distance from the city; but investigations, conducted under the direction of the superintendent of health, have, in most every instance, traced it to local causes.

"This severe and sudden outbreak teaches a lesson which cannot too deeply impress upon the minds of the people the necessity for greater care and precaution in the observance of all domestic sanitary laws, the persistent violation of which inevitably brings its own punishment.

"The lack of a suitable building, where persons afflicted with contagious diseases, for which no provision is made, such as diphtheria, scarlet fever, etc., can receive proper care, having been brought to the notice of the board of health, a special committee was appointed by the board of aldermen, acting as such board, with full power and authority 'to secure a proper location and report plans for a suitable building' for that purpose. After conference with the trustees of the Rhode Island Hospital, arrangements have been concluded, by which a building can be erected upon the grounds of the hospital, and patients receive the care of its officers and physicians.

"In this way a certain class of patients, who are without homes or other suitable surroundings, will have all the advantages of medical skill and good nursing, and the dissemination of disease be lessened. The plan should be carried out at an early day."

## BOARD OF ALDERMEN.

The following resolutions, in relation to public health, were passed during 1882, by the board of aldermen, acting as a board of health:

"*Resolved*, That his honor, the mayor, with aldermen Martin, Barker and Burnham be, and they are hereby appointed a special committee with full power and authority to secure a proper location, and to report plans for a suitable building in which persons having the diphtheria, scarlet fever, or other contagious diseases for which no provision is now made, shall be cared for under such conditions, rules and regulations as may be recommended by the aforesaid committee, and adopted by the board of health."

"*Resolved*, That the board of aldermen, acting as the board of health, hereby direct that the outlets to the sewer openings into the Providence harbor be cleaned, and that all deposits in front of the same, be removed under the direction of the city engineer, the expense thereof to be charged to the appropriation for dredging the harbor."

"*Resolved*, The board of aldermen, acting as the board of health, that the superintendent of health be, and he is hereby, directed to personally investigate and report in writing to the board of aldermen, as soon as possible, and from time to time, as he is making such investigation, where in this city any provisions of the act entitled an act for the better preservation of health in the city of Providence, passed May, 1855, is violated, and also what additions to or amendments of existing ordinances, rules or regulations are required, if any, for the better preservation of health in this city."

## CITY COUNCIL.

*Resolution relative to Sewers and disposition of Sewage.*

[Approved September 15, 1882.]

"*Resolved*, That the city engineer is hereby directed to report plans of the main intercepting sewers, and of any other works necessary for collecting, conducting and disposing of the sewage of this city in accordance with the best approved methods at such a point and in such a manner as will be the least injurious to public health, together with estimated cost thereof."

The following communication in relation to the unusual prevalence of typhoid fever in the city of Providence will be of interest.

OFFICE OF THE SUPERINTENDENT OF HEALTH, }  
PROVIDENCE, November 16, 1882. }

*To the Honorable the Board of Aldermen:*

The subject of typhoid fever occupies the thoughts and conversation of our citizens, at the present time, to an extent heretofore unknown in my experience as health officer. The most exaggerated rumors are prevalent, and though generally without any foundation in fact, they are industriously circulated, apparently with no special object; but with the certain effect of creating and increasing alarm and uneasiness among the people. These rumors are often attributed to some "prominent physician," though the name of the physician is never given.

Statements upon the subject are often attributed to me, which are entirely false, and with no foundation in fact.

For the purpose of correcting these false rumors and allaying the public excitement, I think it my duty to make a brief statement of the facts so far as I know them.

#### 1. THE BEGINNING OF THE DISEASE.

About the middle of the month of October, there began to be rumors of an increasing prevalence of typhoid fever; but it was not unusual at that season, and the reports of deaths in the city gave no indication of any increase of the disease. There were only eight deaths from typhoid fever in the city during the month of October, which was two less than in September, and was not an unusual number for the season.

About the first of November, beginning perhaps four or five days before that date, there was a sudden and very serious outbreak of the disease in all portions of the city, as well as in the neighboring towns, especially in East Providence and in Seekonk, Mass. This outbreak was more sudden, more general, more severe than any I have ever seen in the city. The disease increased with great rapidity after the first of the present month to the present time. The number of cases reported the present week is greatly less than last week; but it is impossible to say whether the disease has reached its height or not. My opinion is that its greatest severity is past, and that it will now decrease probably with rapidity; but I must confess that I am unable to show that this is positively true.

#### 2. CAUSES OF THE DISEASE.

Typhoid fever is specially a disease of the country and not of the city. It is one of the great afflictions of the thinly-settled farming towns in New England, and often prevails in such towns with a severity that would seem appalling if in the same proportion to population in a city. In this city it has never prevailed to any great extent; has never become epidemic, at least during the last twenty-five years. As prevailing in the country, its cause has always been considered to be specially vegetable decomposition. We may mention as perhaps the most important causes of typhoid fever in the country: 1st, Vegetable matter in cellars, remaining through the summer and decomposing; 2nd, Sink-water running on the ground near the farm houses, producing luxuriant vegetation, which decomposes in the fall; and, 3rd, The well water, which is often contaminated with filth. That vegetable decomposition is an important cause of typhoid fever is also shown by the terrible epidemics of the disease that have sometimes arisen in our factory villages in New England from drawing off the water of mill ponds in the latter part of summer, and leaving the bottom exposed through the autumn.

I have also known one case in this city where nearly all the inmates of a large house had typhoid fever from the decomposition of a large quantity of potatoes in the cellar.

With regard to the present epidemic of the disease in this city, it is not so evident what is the cause.

We know that there must have been some general wide-spread cause affecting the whole city and the neighboring towns at the same time, from the fact that

the cases began in all parts of the city and towns at the same time. It is probable, or rather reasonable, that this cause may have been in the atmosphere, and depended upon the peculiarity of the present season; such as the long continued drought of the summer, the wet weather following which produced rank vegetation late in the season, and has been followed by unusually mild weather to this time. But of this we know little with certainty.

But this general, *predisposing* cause has not given every body the typhoid fever, and it is probable, and reasonable, and I think certain, that there must be in all cases some local exciting cause, such as foul air, particularly in sleeping-rooms. But I cannot begin a discussion of this subject at this time.

That unknown individual, a "prominent physician," has been credited with saying that the "Cove" is the sole cause of the present epidemic of fever. We doubt whether any intelligent physician has made the statement; but it is industriously circulated, by persons who must have some other object than the good of the public.

The records of deaths show, the reports of cases of disease show positively, that the population within one-fourth of a mile of the Cove, in every direction, has actually a far smaller percentage of typhoid fever than the same amount of population in any other part of the city.

The greatest number of cases in proportion to population, as shown by the figures, is in the Sixth, Fifth, Third and Ninth Wards, and in East Providence and Seekonk.\* There is also an unusual prevalence of the disease in Cranston and Johnston.

An investigation shows *to-day*, that there are scarcely any cases of typhoid fever among the men who work near the Cove. In the large workshops of the Providence and Worcester Railroad, I am informed that only one man is absent to-day on account of sickness, and it is not stated that his disease is fever. It is hardly reasonable, or to be believed, that if the Cove is the chief cause of the present epidemic, there would be scarcely any cases of the disease in the population most exposed to the influence of the Cove.

It is certain, and no one denies, that there are at times, and at some times much more than at others, very offensive odors arising from the Cove basin.

It is certain that these offensive odors have increased very much within the last few years.

It is certain that if these offensive odors were confined to a narrow space, and undiluted with pure air, they would produce sickness, or, more especially, would produce that depressed condition of the system which would predispose to sickness.

But it is also certain that to-day the Cove basin is not so offensive, nor so dangerous, as the river below, or the river above, where the foul air, confined by wharves, or by buildings, is less diluted when breathed.

The records of mortality and the reports of cases of sickness show positively that typhoid fever is not produced by the Cove; and it is reasonable, and in accordance with experience, that the large open space of the Cove and the Cove promenade, counteracts the injurious effects by the free circulation of air that it gives.

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\* These proportions are changed by later statistics. See page 244.

It is also certain that the offensive odors from the Cove are produced almost wholly by the refuse of manufactories on the rivers that flow into the Cove, some of them located beyond the limits of the city.

It is also certain that the filling up of the Cove basin will not diminish the amount of filthy refuse flowing in the rivers, nor the foul air arising from the rivers, nor the very great and increasing danger to the health of the city from this fact. But I propose to make this the subject of a special report to your Board within a short time.

The statement is credited to another "prominent physician," whose name is unknown to me, and probably unknown to those who make the statement, that the Pawtuxet water is the chief cause of the typhoid fever at the present time.

It is greatly to be regretted that such a statement should be made without the most absolutely certain evidence of its truth.

So far as I know, there is not the slightest foundation for the statement. The Pawtuxet water is carefully analyzed twice each month, and every analysis shows it to be extremely pure, purer in fact than the water used in other cities. It also shows that its purity has gradually increased since its introduction, when it was considered entirely satisfactory.

The Pawtuxet water is used freely by a large portion of the population of the city; say by ninety thousand people, more or less. If its use produces typhoid fever, it is very singular that only a few hundred persons are affected by it.

Besides this, the typhoid fever is much more prevalent, to-day, in proportion to population, in some portions of East Providence and Seekonk, and other towns, than in Providence. It will hardly be claimed that the Pawtuxet water or the Cove, is the cause of the fever in those towns.

I have entire confidence in the safety of the Pawtuxet water, for domestic use, and do not believe it has produced any typhoid fever whatever.

Another unknown "prominent physician," is said to have stated that there are two thousand cases of typhoid fever in the city at the present time; and still "another" says there are at least three thousand cases.

Such statements, if they have been made, are highly reprehensible, and only calculated to do great harm. If made at all, they must have been made entirely at random; as it is certain that no facts are known that can give any possible foundation for them. The only foundation for any positive knowledge upon the subject, is the reports of cases of the disease, and these furnish no evidence of any such number of cases. We will give these statistics hereafter.

It is reported that one physician boasts that he has one hundred and fifty cases of typhoid fever, and has not reported any. Another is reported to have said that he had twenty-five cases and had only reported two or three. It is probable that no such statements have been made, but if any physicians make such statements, which are improbable in themselves, and also boast of their gross neglect of a public duty, it is presumptive evidence that their statements and estimates are unworthy of belief.

The following shows the number of cases of typhoid fever reported in the city up to the present time, Saturday noon, November 25, 1882.\*

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\* This date, and the following statistics have been changed since the report was written, to bring the facts to the latest date possible.

Week ending Nov. 4th.....	51 cases.
Week ending Nov. 11th.....	163 cases.
Week ending Nov. 18th.....	114 cases.
Week ending Nov. 25th.....	103 cases.

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Whole number..... 431 cases.

These cases are in the different wards of the city as follows:

First Ward.....	35	Sixth Ward.....	48
Second Ward.....	14	Seventh Ward.....	50
Third Ward.....	40	Eighth Ward.....	46
Fourth Ward.....	36	Ninth Ward.....	82
Fifth Ward.....	47	Tenth Ward.....	33

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Whole number of cases..... 431

These cases include all reported, extending back to the first of October. A considerable number of them have recovered or died. It is certain that the cases have not all been reported, but I think the greater number of them have been. A fair estimate of the whole number of cases from the first of October to the present time, in my opinion, would not exceed five hundred.

The proportion of cases to population, in each ward, is as follows, the wards being given in the order of greatest proportion of cases: population by census of 1880:

Sixth Ward.....	48 cases, or one in 129 of population.
Fourth Ward.....	36 cases, or one in 172 of population.
Fifth Ward.....	47 cases, or one in 186 of population.
Ninth Ward.....	82 cases, or one in 186 of population.
Seventh Ward.....	50 cases, or one in 188 of population.
Third Ward.....	40 cases, or one in 218 of population.
Eighth Ward.....	46 cases, or one in 278 of population.
Second Ward.....	14 cases, or one in 357 of population.
First Ward.....	35 cases, or one in 392 of population.
Tenth Ward.....	33 cases, or one in 570 of population.

Of the whole number of cases, the comparative severity was reported as follows:

Mild.....	105 cases, or 24.36 per cent.
Average.....	195 cases, or 45.24 per cent.
Severe.....	131 cases, or 30.40 per cent.

None were reported malignant.

Respectfully submitted,

EDWIN M. SNOW, M. D.,

*Superintendent of Health.*

#### SCITUATE.

1. No very serious disease has prevailed largely in the town during the last year.

2. No cases of small pox in town during the year.
3. No disease occurred among domestic animals during the year.
4. No work for the promotion of public health, has been contemplated by the authorities of the town during the year.
7. Nothing in the way of abatement of nuisances.
8. No legal board of health beside the town council.
9. No health officers in the town.
10. No gratuitous vaccination provided in this town during the past year.

D. H. REMINGTON.

WOONSOCKET.

1. I have no knowledge of any very fatal or very serious disease, that has prevailed largely in this town during the last year.

2. There have been three cases of small pox, all in one family—no deaths. The attending physician says that a person from some town in Massachusetts visited the family and communicated the disease.

3. No widely spread or largely fatal disease occurred among domestic animals during the year.

There have been a few cases of pink-eye among horses but very few fatal cases.

4. No work for the promotion of public health contemplated in this town by the proper authorities of the town during the year, except in relation to the introduction of water for domestic use.

5. The movement for the introduction of water for general use is apparently progressing favorably.

6. No public sewers laid.

7. No abatement of nuisances, or improvement in heating or ventilating public buildings, halls, school houses, &c., or compelling the removal of excreta, garbage, house refuse, &c.

8. No legal board of health beside the town council.

9. The health officers of this town are responsible to the town council. Dr. George W. Jenekes, James H. Rickard, Thomas J. Gaddes, Dolphus Sylvestre, Health Officers.

10. No gratuitous vaccination provided in this town during the past year, except for school children.

A. E. GREENE.

WASHINGTON COUNTY.

CHARLESTOWN.

1. No diseases fatal or very serious have prevailed to an unusually large extent in this town during the past year.

2. There have been no cases of small pox in this town during the past year.
3. No wide spread or largely fatal disease among domestic animals.
4. No work for the promotion of public health contemplated, commenced or completed.
5. No introduction of water.
6. No sewerage.
7. No abatement of nuisances.
8. No legal board of health other than town council.
9. No health officer responsible to town council.
10. Gratuitous vaccination was provided for by the town council, which was performed at the district school houses by Geo. H. Beebe, M. D.

G. C. CROSS.

EXETER.

1. No very fatal or very serious disease has prevailed largely in this town during the last year.
2. No cases of small pox during the year.
3. No serious disease occurred among domestic animals in the town during the year.
4. No work for the promotion of public health has been contemplated by the authorities of the town during the year.
7. No act in abatement of nuisances.
8. No legal board of health beside the town council.
9. No health officers appointed
10. Gratuitous vaccination has been provided in the town during the past year.

N. B. LEWIS.

HOPKINTON.

1. No very fatal or very serious disease has prevailed largely in this town during the last year.
2. No cases of small pox during the last year.
3. No particular disease has occurred among domestic animals during the year.
4. There has been no work for the promotion of public health by the authorities of the town during the year.
5. No introduction of water for general use.
7. Nothing in the way of abatement of nuisances, or improvement in heating or ventilating public buildings, halls, school houses, &c.

8. No legal board of health beside the town council.
9. No health officers in the town.
10. No gratuitous vaccination has been provided in the town during the year 1882, but was in the year 1881.

E. R. ALLEN.

NORTH KINGSTOWN.

1. There has been no very fatal or very serious disease, that has prevailed largely in this town during the last year.
2. There were two cases of small pox in this town during the year. Neither case fatal. Do not know the source from whence derived.
3. No widely spread or largely fatal disease occurred among domestic animals in the town during the year.
4. No work for the promotion of public health contemplated by the authorities of the town during the year.
7. No council action in the abatement of nuisances.
8. No legal board of health beside the town council.
9. No health officers in the town.
10. Gratuitous vaccination has been provided in this town during the past year.

J. B. PEIRCE.

RICHMOND.

1. I do not know of any very fatal or very serious disease that has prevailed largely in this town during the last year.
2. No cases of small pox in this town during the year.
3. No disease has occurred among domestic animals in the town during the year.
4. No work has been done for the promotion of public health by the authorities of the town during the year.
7. Nothing in abatement of nuisances, or other improvements of a sanitary character.
8. No legal board of health beside the town council.
9. No health officers in the town.
10. No gratuitous vaccination has been provided in this town during the past year.

H. P. CLARK.

WESTERLY.

1. No very fatal or very serious disease has prevailed largely in this town during the last year.

2. No cases of small pox in the town during the year.
3. No widely spread or largely fatal disease occurred among domestic animals in the town during the year.
4. No particular work for the promotion of public health contemplated by the authorities of the town during the year.
5. No introduction of water for general use.
6. No public sewers laid.
7. No new ordinance in abatement of nuisances, or improvement in heating or ventilating public buildings, halls, school houses, &c., or compelling the removal of excreta, garbage, house refuse, &c.

The ordinances of this town in relation to the above may be found appended to this report.

8. No legal board of health beside the town council.
9. Health officers in this town responsible to town council, were appointed as follows: David Smith, Benjamin York.
10. No gratuitous vaccination has been provided in this town during the past year.

W. HOXSEY.

#### AN ORDINANCE FOR THE SUPPRESSION AND PREVENTING OF NUISANCES.

*It is ordained by the Town Council of the town of Westerly, as follows :*

SECTION 1. Any person causing or suffering filthy water to collect on his premises, or premises occupied by him, so as to be prejudicial to health, or causing or suffering the same to run into any public street or highway in this town, and not remedying the same within twenty-four hours after notice from any health officer; and if any person shall throw any coal ashes, cinders, shavings, manure, oyster, clam, lobster or other shells, or filth, into any of the streets or highways in the village of Westerly, or other thickly settled parts of said town, shall be fined not less than three dollars nor more than ten dollars.

SEC. 2. It shall be the duty of every health officer of this town to examine into the state and condition of every place and part of said town where such officers shall suspect or be informed that there exists any matter or thing which is or may become injurious to the health of the inhabitants thereof.

SEC. 3. Whenever it shall appear to the satisfaction of any health officer that there exists upon any premises owned or occupied by any person any dirt or offal, or any animal or vegetable matter, or the contents of any hog-pen, cow-yard, barn, privy, drain or vault, injurious to health or the neighborhood, it shall be the duty of such health officers to cause the owner or occupant of such premises to be notified in writing of the existence of such nuisance or annoyance, and to direct such owners or occupants forthwith to remove or abate the same; and if such nuisance or annoyance shall not be abated within twenty-four hours after such notice, such owners or occupants shall, for each and every day they shall suffer such nuisance or annoyance to remain after the notice aforesaid, be liable to pay a fine of not less than five dollars nor more than twenty dollars.

SEC. 4. If such nuisance or annoyance shall not be abated by the owners or occupants of the premises where such nuisance or annoyance exists, at or before the expiration of the notice mentioned in the next preceding section of this ordinance, and if in the opinion of such health officers the expense of abating the same will not exceed ten dollars, then it shall be the duty of such health officers to authorize in writing the sheriff of the county of Washington, his deputies, or the town sergeant, or either of the constables or police officers of said town, forthwith to cause such nuisance or annoyance to be abated. And the town council shall order the expenses thereof, not exceeding ten dollars, to be paid out of the town treasury of said town to the officer abating the same, which said expenses, so paid as aforesaid, shall be recovered from the party causing or continuing said nuisance or annoyance, in an action of debt in the name of the town treasurer of said town, before any court of competent jurisdiction.

SEC. 5. Whenever it shall appear to the satisfaction of any health officer that there exists upon the premises owned or occupied by any person any matter or thing injurious to the health of the inhabitants of any part of said town, or which, in his judgment, may originate or conduce to the spreading of any infectious or contagious disease, and that the expense of abating such nuisance or other cause dangerous to health shall be estimated at more than ten dollars, it shall be the duty of the health officer, as soon as the exigency of the case shall reasonably require, to report the same in writing to the town council, setting forth the particulars of such nuisance and the probable expense of removing the same, as nearly as may be, and the owner or occupant of the premises upon which such nuisance or nuisances exist, or the person who may have caused, continued or permitted the said nuisance or nuisances, shall be forthwith notified to appear before the town council, at such time as the council shall appoint, to show cause, if any, why said nuisances shall not be abated or removed. And said council, upon satisfactory evidence to them submitted that said nuisance exists, may order the sheriff of said county, his deputies, or the town sergeant, or either of the constables or police officers of said town, forthwith to abate the same, and the expenses thereof shall be paid out of the town treasury, and be recovered from the party causing or continuing the same in the same manner as prescribed in the next preceding section of this ordinance.

AN ORDINANCE IN RELATION TO THE REMOVAL OF THE CONTENTS OF SINKS,  
CESSPOOLS AND PRIVY VAULTS.

*It is ordained by the Town Council of the town of Westery as follows:*

SECTION 1. Every person who shall at any time whatsoever empty into any public street or highway of said town, any part of the contents of any sink, cesspool or privy, shall be fined not less than five dollars nor more than fifteen dollars.

SEC. 2. No person or persons shall between the first day of May and the first day of November in any year, carry into or through any such public street or highway, any part of the contents of any sink, cesspool or privy, in any cart, wagon, or other vehicle whatever, except between the hours of ten o'clock in the evening and sunrise.

SEC. 3. No person or persons shall at any time whatsoever, carry into or through any such public street or highway, any part of the contents of any sink, cess pool or privy, in any cart, wagon, or other vehicle which shall not be effectually covered and water tight.

SEC. 4. No cart, wagon, or other vehicle whatever, having therein any part of the contents of any sink, cesspool or privy, shall be permitted to stand (except while loading) in any such street or highway.

SEC. 5. In case of violation of any of the provisions of the last three sections of this ordinance, the owner or owners, driver or drivers of any such cart, wagon or vehicle, shall be fined not less than five dollars nor more than twenty dollars.

AN ORDINANCE IN RELATION TO THE REGISTRATION OF BIRTHS AND DEATHS,  
AND THE INTERMENT OF THE DEAD.

*It is ordained by the Town Council of the town of Westerly as follows :*

SECTION 1. There shall be appointed by the Town Council a sufficient number of persons to act as undertakers, removable at the pleasure of the Town Council.

SEC. 2. Whenever any person shall die in this town, it shall be the duty of the physician attending in his or her last sickness, upon application, to furnish to the undertaker attending the funeral, or to the town clerk, a certificate giving the name of the person, date of death, and the disease or cause of his or her death.

SEC. 3. Every physician omitting or refusing to furnish such certificate as aforesaid, shall forfeit and pay the sum of five dollars for each offence.

SEC. 4. No person shall bury, or place in a tomb, or remove from the town, or otherwise dispose of the body of any human being who shall die in this town, without first reporting the death to the Town Clerk, and obtaining a permit from him, under a penalty of not less than five dollars nor more than twenty dollars for each and every offence.

SEC. 5. No permit shall be given, as provided in section four, until the Town Clerk is furnished with the information in relation to the deceased person, required by the laws of the State for record, so far as the same can be ascertained, together with the physician's certificate of the cause of death, whenever a physician has been in attendance, or a coroner's certificate, whenever a coroner's inquest has been held. Whenever a permit for burial is applied for, in a case of death without the attendance of a physician, or if it is impossible to obtain the physician's certificate, it shall be the duty of the Town Clerk to investigate the case so far as may be necessary; and when he has obtained satisfactory evidence in relation to the cause and circumstances of the death, he shall sign the certificate and give the required permit. If not satisfied in relation to the cause and circumstances of the death; or if, in his opinion, the public good requires it, he shall report the case to the coroner for investigation.

SEC. 6. Whenever the body of a human being who has died out of the town, shall be brought here for burial, it shall be the duty of the undertaker, or other person attending the funeral, to furnish the report required in sections four and five, with the exception of the physician's certificate; and in case of neglect or

failure so to do, such person shall forfeit and pay not less than five dollars nor more than twenty dollars for each and every offence.

SEC. 7. All funerals shall take place between sunrise and sunset, unless otherwise permitted or directed by the Town Council.

SEC. 8. No undertaker or other person shall bury, or cause to be buried, the body of any deceased person in this town, except in such grounds as are now known and used as burying grounds, or such as shall hereafter be by the Town Council designated as burying grounds, and authorized to be used as such; and every person violating this section of this ordinance, shall forfeit and pay a sum of not less than five dollars nor more than twenty dollars for each offence.

SEC. 9. It shall be the duty of the physician, midwife, or person acting as midwife, attending at the birth of any child in this town, whether still-born, premature birth, or otherwise, to make return to the Town Clerk of all the facts required by the laws of the State for record, so far as the same can be ascertained, *on or before the second Monday of every month*, for the last preceding month, for which return the fee allowed by law shall be paid. Every physician, midwife, or person acting as midwife, omitting to make return as aforesaid, shall forfeit and pay a sum of not less than five dollars nor more than twenty dollars for each and every offence.

#### AN ORDINANCE IN RELATION TO VACCINATION.

*It is ordained by the Town Council of the town of Westervly as follows:*

SECTION 1. No child shall be admitted into any secular school in this town, until a certificate shall be presented to the principal teacher of such school, from some physician in good standing, setting forth that such child is properly vaccinated.

SEC. 2. Any teacher violating this ordinance shall forfeit and pay a fine of five dollars for each and every offence.

## METEOROLOGY.

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From the results of meteorological observations, made by the medical correspondents of the Board, in the several towns throughout the State, during the years 1878 and 1879, it was seen that the atmospheric conditions in respect to temperature and humidity prevailing at the same dates, did not greatly differ, the principal differences being those of humidity occurring during the warm season, and depending largely doubtless upon the difference of visitation by transient showers.

There was, however, seen to have been a more marked difference in the prevailing direction of the wind during each month, between the northern and southern half of the State.

It was seen, also, that the observations made in the towns in the northern part of the State, corresponded almost exactly with those made in Providence city, and those made in the southern part of the State, with the observations made in Newport city.

Since 1879, the observations made at the office of the City Engineer of Providence, and at the office of the Signal Station of the U. S. A., in Newport city, have been had recourse to as showing with sufficient accuracy the meteorological conditions of the whole State.

Through the kindness of S. M. Gray, City Engineer of Providence, and the officers of the Chief Signal Office, U. S. Army, at Washington, D. C., the following tabulated meteorological observations for the year 1882, were furnished for the present annual report.

Remarks in regard to the value of meteorological statistics, in connection with mortuary statistics and statistics of prevalent diseases, in the study of the causes of disease, may be found in previous reports of the Secretary, and to a limited extent on page 170 of this report.

## CITY ENGINEER'S OFFICE, PROVIDENCE, R. I.

*Temperature, Rainfall and prevailing direction of the wind, for each month during the year 1882.*

1882.	TEMPERATURE.							Total amount of Rain or Melted Snow in inches.	Prevailing Direction of the Wind.
	Monthly Mean.	Maximum.	Minimum.	Monthly Range.	Greatest Daily Range.	Least Daily Range.	Average Daily Range.		
January .....	27.3	51.	*—11.	62.	37.	7.	18.6	8.43	N. W.
February .....	31.1	52.	6.	46.	40.	8.	17.0	5.50	N. W.
March .....	36.4	60.	16.	44.	32.	7.	16.6	4.13	N. W.
April . . . . .	43.8	71.	26.	45.	41.	5.	17.8	3.39	W.
May .....	51.6	77.	33.	44.	30.	4	17.5	4.61	Variable
June.....	68.2	92.	49.	43.	28.	14.	20.3	2.80	N. W.
July....	74.1	95.	47.	48.	31.	8.	19.3	2.32	S. W.
August .....	71.8	93.	51.	42.	28.	7.	19.4	1.84	S. W.
September.....	64.2	84.	46.	38.	26.	5.	14.2	9.43	S.
October.....	55.2	77.	38.	39.	27.	5.	14.7	3.35	{ N. N. E. N. W.
November .....	38.0	70.	16.	54.	27.	6.	14.8	2.35	N.
December.....	28.8	53.	5.5	47.5	40.5	7.	16.7	3.69	N. W.

Mean temperature for the year 1882 was 49.2° Fah. Total amount of rain or melted snow, 51.84 inches.

\* Below zero.

NOTE.—The maximum and minimum thermometers are not read on the Sabbath; therefore the daily ranges were computed, considering the reading from Saturday to Monday as one.

## SIGNAL SERVICE STATION, U. S. A., NEWPORT, R. I.

*Statement showing the temperatures, the precipitation, and the prevailing direction of the wind, for each month of the year 1882.*

*(Compiled from the records on file at the office of the Chief Signal Officer, U. S. Army, Washington, D. C.)*

Month.	TEMPERATURE.							Precipitation.	Prevailing Wind.
	Maximum.	Minimum.	Mean.	Absolute Range.	Greatest Daily Range.	Least Daily Range.	Mean Daily Range.		
January... ..	49.7	*—7.8	30.9	57.5	36.2	9.1	17.0	6.55	W.
February.....	53.3	10.0	33.5	43.3	31.6	7.2	14.4	5.89	S. W.
March.....	56.7	17.8	37.6	38.9	23.4	7.3	14.1	4.23	N. W.
April.....	62.4	24.0	43.1	38.4	20.3	8.9	14.3	4.54	S. W.
May.....	75.4	35.3	49.8	40.1	25.5	5.8	13.3	4.55	S. W.
June.....	85.5	48.9	64.2	36.6	22.3	6.8	14.4	2.99	S. W.
July.....	88.2	54.4	70.0	33.8	18.9	5.1	14.0	2.18	S. W.
August.....	82.2	55.6	70.2	26.6	20.3	8.0	13.3	1.66	S. W.
September....	83.1	49.9	64.6	33.2	19.4	6.6	11.4	6.57	N.
October.....	72.0	43.0	56.4	29.0	20.6	3.4	11.7	5.27	N.
November.....	71.2	21.0	40.7	50.2	20.8	5.0	11.7	1.58	N.
December.....	53.0	10.4	32.6	42.6	30.0	6.3	13.1	3.91	W.
Annual Mean..			49.5					49.92	S. W.

Mean temperature of the year 1882, 49.5. Total amount of rain and melted snow 49.92 inches.

\* Below zero.

WAR DEPARTMENT, WASHINGTON, D. C., April 3, 1883.

## CATTLE COMMISSION.

The year 1882 was unusually exempt from any widely spread disease among domestic animals whether contagious or climatic. Spinal Meningitis among horses was the most serious disease occurring sporadically in all sections of the State, but was nowhere very prevalent. The Pink Eye also, running over from the previous year was prevalent in some localities, but was very mild in uncomplicated form and no deaths are known to have been caused by it.

There was, however, a great mortality among swine in the towns of Burrillville and Middletown. The disease was confined to a few swineyards, and in all of them the food was largely of swill collected in the cities of Providence and Newport. It is not however supposed that the disease occurred in consequence of such feeding wholly, the swill before being fed, having in all cases been subjected to a high degree of heat by boiling. The probabilities are, that the disease occurred largely, in one instance, and in the others to some extent, in consequence of confining large numbers in very limited quarters, and for a series of years consecutively, without change of immediate surrounding conditions.

### GLANDERS.

This disease continues to exist among horses, but in greatly diminished numbers, compared with its prevalence at the time of the establishment of the State Board of Health.

It may be remembered that during one year more than one hundred horses were destroyed in the State, because of being affected with glanders or farcy.

These were found, with but few exceptions, in Providence and Kent counties. Since that time, by vigilant inspection and placing or putting out of harm's way all animals suspected of having glanders, and destroying all such as were found to be glandered without

doubt, the spread of the disease has been very greatly restricted, and consequently the number found during 1882 was very small in proportion.

The whole number destroyed during the year was fifteen. Of these nine were found in Providence city, three in Johnston, one in North Providence, one in Pawtucket, and one in Scituate.

There were however over forty horses, beside the above, that were examined upon information given by persons who had suspicions that they were affected with glanders, and of which eight only were isolated after examination, and of the eight, three only proved to be glandered.

This fact shows two things: first, that there is a wholesome dread in the communities of the extension of the disease, and second, that in the early stages it is so much like some other diseases, that isolation or quarantine are necessary to definitely settle the question. Some owners have felt it a great grievance to be deprived of the use of a horse on the public road, or where contact with other horses was assured or probable, but the public safety has demanded isolation, and the real loss has doubtless been less than the owners' estimation, because it would seem that two or three weeks rest of a horse sick enough to be suspected of glanders, would make him more valuable after recovery from some other ailment, than he would have been if worked during the same time.

No large number of horses come into the State without some inspection, and the horses standing upon the streets, or found anywhere, unless in too rapid motion for the purpose, are vigilantly and continually looked after by persons who have that matter in hand.

#### BOVINE ANIMALS.

As usual there have been cases of sickness among cows, with occasionally the occurrence of one, two or more deaths in a single yard or stable. Some alarm has been felt in two or three instances, in the fear that pleuro-pneumonia had found entrance into the yards of neat stock. A knowledge of the characteristics of the disease would have dissipated all fear, or rather would have prevented the entertainment of suspicion. It is an infectious disease, and can only occur after exposure to an animal having the disease. As there has not been a single case in the State for several years, and as it never occurs spontaneously, there need be no fear, unless an animal having the disease has been brought into the State from localities where it has continued existence.

Pleuro-pneumonia has been localized for a number of years, in a strip of territory on the sea board, extending from New York to central Virginia, and from fifty to an hundred miles in width. Cattle taken from this section, have in a considerable number of instances carried the infection to other localities, and formed centres of the disease. These have, however, so far, been sooner or later stamped out, although in some instances at great expense. The infection is also sometimes introduced by the importation of blooded stock from other countries.

To avoid the introduction of pleuro-pneumonia, the rinderpest and other virulent contagious and infectious diseases of neat cattle, that prevail in foreign countries and in Europe more particularly, the government of the United States have established quarantine yards in several States near ports of entry, where all cattle imported from other countries, are detained for several months, and until whatever disease may have been taken by them before leaving infected localities, or may be latent in the system, will have ample time to be developed.

A Board was provided for by Congress during the year, which has been called the Treasury Cattle Commission, whose duty it is in connection with the Collectors of several ports, to provide shelter and other accommodations for the cattle imported into this country, while under quarantine for suspected or possible diseases until such time as the question may be definitely settled. In the New England States there are two quarantine stations. One in the town of Waltham a few miles from Boston, and one in the town of Deering in the neighborhood of Portland, Maine.

The government provides shelter, water and ample areas for air and exercise, and grazing in the warm season, while the owners provide food and care of the animals.

Quarantine is also provided in a similar way by the Canadian government. There are stations at Montreal and Quebec on the St. Lawrence river, and near St. John's in New Brunswick.



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# THE COMPOSITION AND PROPERTIES OF MILK:

BY

EDWIN E. CALDER,

ANALYTICAL AND CONSULTING CHEMIST; INSPECTOR OF MILK FOR CITY OF PROVIDENCE.

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## SYNOPSIS OF SUBJECT.

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Definition of Milk.

Composition of Milk.

Effect of Breed.

Effect of Food.

Average Yield.

Influence of Breed.

Preservation of Milk.

Effect of Thorough Cooling.

Effect of Heat.

Use of Mineral Preservatives.

Causes affecting Quality of Milk supplied any city.

Improper Food.

Careless Treatment by Dealers.

Improper Management by Consumers.

Diseased Milk.

Skimmed Milk.

Milk Inspection and Examination.

By use of the Lactometer.

By Chemical Analysis.

Laws Regulating the Sale of Milk.

Necessity of a Fixed Standard.

How Standard is Obtained.

Objections to a Definite Standard.

Milk Law.

Milk Products.

Cream.

Composition and Methods of Raising.

Condensed Milk.

Skim-Milk.

Butter.

Cheese.

Comparison of Cow's Milk with Milk of Other Animals.

Value of Milk as a Food.

## THE COMPOSITION AND PROPERTIES OF MILK.

*What is Milk?*—Milk is an emulsion; it is water holding in solution certain mineral salts, milk-sugar and various albumenoids, and in suspension fatty matters in the form of minute, transparent, colorless globules. It is generally of a white, sometimes bluish and more rarely yellowish color, possesses a slight but pleasant odor, and an agreeable sweetish taste. When freshly drawn, milk is either neutral or very slightly acid in its reaction. Chemically milk is a fluid, very complex in composition, the character and percentage of the various constituents depending upon a variety of circumstances. The average composition of milk may be seen from the following table:

	Fat.	Caseine.	Sugar.	Salts.	Water.	Total Solids.	Solids not Fat.	
Vernols & Becquerel, 46 analyses...	4.51	4.86	4.15	.65	85.76	14.17	9.66	{ Johnson's Cyclopedia.
Henri and Chevalier, average.....	3.13	4.48	4.77	.60	87.62	12.98	9.85	
Payen, average.....	3.20	4.20	4.30	.70	87.60	12.40	9.20	
Boussingault, average.....	4.10	3.20	5.10	.20	87.40	12.60	8.50	
Poggiale, 10 analyses.....	4.38	3.80	5.27	.27	86.28	13.72	9.34	
Muspratt, average.....	4.43	3.74	4.83	.57	86.43	13.57	9.14	
Dieulafoy, several analyses.....	3.11	4.18	4.22	.85	87.64	12.36	9.25	
Haidlen, average.....	3.00	4.82	4.39	.49	87.30	12.70	9.70	
Gorup-Bezanetz, average.....	4.31	5.40	4.04	.55	85.70	14.30	9.99	
Dr. Letherby, average.....	3.90	4.10	5.20	.80	86.00	14.00	10.10	
W. Brinton, average.....	4.50	5.50	3.50	.70	86.00	14.00	9.50	
Jagielski, average.....	3.60	5.10	4.60	.60	86.10	13.90	10.30	
J. Konig.....	3.00	4.00	5.00	.70	87.30	12.70	9.70	
C. A. Cameron, 40 analyses.....	4.00	4.10	4.28	.62	87.00	13.00	9.00	
S. Macadam, 44 analyses.....	2.42	8.00	.91	.69	87.96	12.04	9.62	{ Amr. Chem., 1875. " " " Prac. Chem. (Blyth.) Analyst, 1877. " " " Sci. Farmer, 1878.
Alex. Muller, 59 analyses.....	4.05	3.33	4.70	.73	87.19	12.81	8.76	
W. L. Scott, average.....	3.57	4.55	4.90	.74	86.24	13.76	10.19	
O. C. Wiggan, 58 cows.....	4.01	4.99	4.29	.79	85.92	14.08	10.07	
H. W. Vaughan, 30 analyses.....	4.96	4.29	4.23	.81	85.71	14.29	9.33	
Macadam, town milk, 66 samples....	2.58	.....	.....	.71	87.73	12.27	9.69	
" country milk, 7 samples.....	2.88	.....	.....	.71	87.23	12.77	9.89	
Carter Bell, 181 cows.....	3.70	.....	.....	.76	86.20	13.80	9.90	
J. Carter Bell, 183 samples.....	3.65	.....	.....	.76	86.46	13.54	9.88	
Wanklyn, country milk, average....	3.07	4.04	4.62	.72	87.55	12.45	9.38	
" town milk, average.....	4.01	5.02	4.30	.73	85.94	14.06	10.05	
S. P. Sharples, 34 samples.....	4.62	4.06	4.82	.65	85.85	14.15	9.53	{
E. E. Calder, 27 samples.....	3.082	8.	554	.675	87.689	12.311	9.229	
E. E. Calder, 440 cows.....	3.32	.....	.....	.....	87.23	12.77	9.45	

A more extended and complete analysis of milk is as follows :

AVERAGE COMPOSITION OF HEALTHY COW'S MILK.

(A. W. Blyth, *Chemical News*, 1879.)

Milk Fat.....	{	Olein,	1.477	}	.....	3.50	
		Stearin,	}				1.750
		Palmitin,					
		Butyrin,	0.270				
		Caproin,	}				.003
		Caprylin,					
		Rutin,					
Caseine.....						3.98	
Albumen.....						0.77	
Milk Sugar.....						4.00	
Galactin.....						.17	
Lactochrome, undetermined.							
Bitter principle (glucoside?).....						.01	
Urea—traces.							
Creatin—traces.							
Ash.....	{	K <sub>2</sub> O,	.1228	}	.....	.700	
		Na <sub>2</sub> O,	.0868				
		Ca O,	.1608				
		Fe <sub>2</sub> O <sub>3</sub> ,	.0005				
		P <sub>2</sub> O <sub>5</sub> ,	.1922				
		Cl,	.1146				
		Mg O,	.0243				
Water.....						86.87	

CAUSES AFFECTING THE COMPOSITION OF COW'S MILK.

*Breed of the Cow.*—The quality or richness of pure milk is affected by a variety of causes. Prominent among these may be mentioned the breed of the cow. The richness of milk not only varies between cows of different breeds, but there is often seen a marked difference in the milk given by cows of even the same breed. The effect of purity of breed on the composition of milk is illustrated by the following table :

BREED.	Sp. Gr.	Cream.	Fat.	Caseine.	Sugar.	Salts.	Water.	Solids.	Analyst.
Angus.....			9.88	5.28	3.73	.72	80.32	.....	Vernois and Becquerel.
Belgian.....			6.22	4.06	3.20	.67	85.77	.....	" " "
Bohemian.....			6.34	3.87	4.96	.64	84.18	.....	" " "
Bretonne.....			5.70	5.37	4.55	.62	83.74	.....	" " "
Charollais.....			6.42	4.12	3.49	.68	85.28	.....	" " "
Durham.....			6.41	4.37	3.97	.68	84.56	.....	" " "
Flamande.....			3.72	3.37	4.03	.54	88.30	.....	" " "
Dutch.....			6.84	4.21	4.35	.61	83.97	.....	" " "
Wurzthal.....			6.28	3.14	4.62	.64	85.31	.....	" " "
Normandy.....			3.24	4.76	4.21	.60	87.18	.....	" " "
Paris.....			3.61	5.21	4.10	.66	86.40	.....	" " "
Swiss.....			7.08	2.55	4.59	.56	85.19	.....	" " "
Tyrol.....			7.96	4.95	4.82	.50	81.74	.....	" " "
Voigtland.....			5.14	4.56	4.62	.68	84.99	.....	" " "
Alderney.....	1030	24	8.07	5.02	3.05	.79	83.04	16.96	O. C. Wiggin, M. D.
Alderney.....	1029	29	8.28	3.14	4.02	.63	83.93	16.07	" " "
Durham.....	1033	18	6.41	4.35	3.97	.68	84.56	15.44	" " "
Ayrshire.....	1031	10	3.70	4.76	4.35	.59	86.60	13.46	" " "
Ayrshire.....	1030	10	3.80	4.69	3.58	.78	87.15	12.85	" " "
Polled.....	1032	5	3.37	5.18	4.25	.73	86.47	13.53	" " "
Devon.....	1033	13	3.96	5.29	4.23	.81	81.71	15.29	" " "
Short Horn.....	1031	12.7	2.66	4.81	4.03	.70	87.79	.....	Scientific Farmer, 1878.
Galloway.....	1026	9.9	2.74	5.36	3.80	.67	87.43	.....	" " "
Short Horn.....		18	4.61	.....	.....	.73	85.22	14.78	E. E. Calder.
Short Horn.....		7	3.46	.....	.....	.58	87.27	12.73	" "
Devon.....			3.39	.....	.....	.61	.....	13.42	" "
Devon.....			3.89	.....	.....	.67	.....	13.05	" "
Devon.....			2.99	.....	.....	.56	.....	12.21	" "
Ayrshire.....			3.28	.....	.....	.64	87.45	12.55	" "
Ayrshire.....			3.72	.....	.....	.71	86.71	13.29	" "

*Effect of Food.*—The feed of the cow both as regards quality and quantity exerts considerable influence on the character of the milk. While the yield of milk and its percentage of butter cannot be in-

creased at will, it is without doubt true that its quality may be very materially influenced by the feeding. While it is impossible to give any invariable method of feeding or one applicable to all kinds of animals, it may yet be safe to say that a milch cow should be fed all that she can properly digest. The two prominent sources of demand for food are, the waste of the body, and the maintenance of animal heat, and as a general rule those foods best adapted to meet these requirements are the best ones to employ. During the past few years scientific investigators and experimenters in this and other countries, have devoted much time and care to the subject of cattle foods, and to the results of their labors we owe much valuable information in this direction. The science of feeding consists not merely in giving hay or grain but in furnishing the requisite amounts of Proteine, carbohydrates, fat and ash daily in amounts sufficient for the growth of the animal or for the purpose for which it is kept.

While it is true that an animal should receive a certain amount of food matter, yet those fodders furnishing the largest amounts of these food elements are not in all cases the proper food to employ. In the milk supplied any city, samples are sometimes found the poor qualities of which are attributed, falsely or otherwise, to the character of the food supplied. In some cases there is no doubt over feeding and forcing by use of over rich food, as oil cake, brewer's grains and the like, may in a measure influence the ordinary richness of the milk. It may therefore be of interest if not of profit to consider briefly the nature and quality of a few common representatives of the class of so-called objectionable foods. First in importance, because more often objected to, may be mentioned Brewer's grains. This fodder is often condemned unjustly because of its being almost universally confounded with the refuse from distilleries or still slops. Against the feeding of the latter no objections too strong can be raised, but against the use of the former, particularly when fresh, there should be no opposition. That these grains judiciously fed compare as a cattle food in their milk making constituents favorably with other fodders is abundantly illustrated in the following table.

Prof. S. W. Johnson (American Chemist, 1873,) speaks of these grains as follows: "As cattle food these grains have a higher value than for manure. This will be evident from the following analyses and remarks:

	Brewers' Grains.	Meadow Grass before Blossom.	Maize Fodder, August.
Moisture.....	78.50	75.00	82.20
Ash.....	10.7	2.10	1.10
Cellulose crude fibre.....	3.11	7.00	4.70
Albumenoids.....	4.68	3.00	1.10
Starch, sugar, fat, etc., by difference.....	12.64	12.00	10.10

The grains are thus seen to surpass cow fodders in every respect and to contain four times the percentage of albumenoid or flesh forming matters of the green stalk. They compare also, well with grass before blossom, and have but one deficiency, viz.: that of potash and sulphates. The proportion of albumenoids in the brewer's grains exceeds that of any kind of green fodder grown in this country, young clover not excepted. The condition of the nutritive matters in these grains is doubtless adapted for rapid digestion, and they must be regarded as an excellent adjunct to the farmers' resources." Within a short time these grains have been rendered more valuable by a process of drying. Of these kiln-dried Brewer's grains it is stated, (Conn. Agri. Exp. Station Report, 1880,) that, "Brewer's grains, i. e. the residue of barley after it has been malted and used for making beer-wort, has long enjoyed a high repute as cattle food, especially for milch cows; and notwithstanding the fresh grains contain an average of 78 per cent. of water, they are much sought after by farmers living within a few miles of the breweries. During the warmer season, however, large quantities sour and spoil before they can be fed.

\* \* \* Recently it has been attempted to make them capable of indefinite preservation and of easy handling by removal of most of the water which not only constitutes three-fourths of their weight when fresh, but renders them so susceptible of damage.

	Kiln Dried Brewers' Grains.	Oats. (Average.)
Water.....	2.57	13.7
Ash.....	3.97	2.7
Albumenoids.....	20.38	12.0
Crude fibre.....	11.79	9.0
Nitrogen free extract.....	54.89	56.6
Fat.....	6.40	6.0

Without doubt dry brewer's grains may be considered equally nutritious with dry grains of any sort, that correspond to them in chemical composition."

As a representative of the oil cakes may be mentioned Cotton seed. Regarding the value of cotton seed as a feeding stuff, the Report of N. C. Agri. Exp. Station, for 1881, contains the following information: "The substances which are digested by animals are of four kinds: 1st, Protein or albumenoid substances more or less resembling white of egg or flesh fibrin in composition and properties. These are the flesh formers as they are sometimes called.

2d. Starch and substances of similar composition to starch, including the digestible portion of the cellulose or fibre of plants. These are all classed together under the head, Nitrogen free extract in the chemical analyses.

3d. Fat.

4th. Ash, or mineral matter of plants, grains, seeds, etc. A portion of this is digested, and contributes to the nourishment of the bones and tissues of animals. The crude fibre is that part of the cellulose or woody fibre which is too coarse to be digested." In the following table the amounts of these ingredients contained in cotton seed are compared with the amounts in other representative feeding stuffs:

	Total dry Matters.	Protein.	Fat.	Nitrogen Free Extract.	Crude Fibre.	Ash.
Cotton seed raw.....	91.9	22.8	29.8	11.5	20.3	7.5
Cotton seed meal.....	91.9	43.7	14.0	21.5	5.6	7.1
Corn, average all kinds.....	88.8	10.9	5.3	60.2	1.8	1.5
Oats.....	87.0	11.7	6.0	55.4	10.8	3.1
Wheat.....	89.3	11.8	2.3	71.9	1.6	1.7
Cow-pea.....	80.0	21.6	1.3	49.3	4.7	3.2

We see from these figures that cotton seed is remarkable for the amount of protein and of fat it contains, and that the amount of starch is quite small comparatively. These facts should be kept in view always in using cotton seed meal as a feed. \* \* \* Although cotton seed meal cannot be substituted for grain in the best and most rational system of feeding it fills a most important place. As a highly nitrogenous food it answers a specific and very important pur-

pose. Like the other oil-cakes, cotton-seed cake should be used to supplement the grains and fodders yielding an excess of starch and cellulose alone."

Among the many food stuffs none has been more prominently brought to the attention of the farmers during the past few years than Ensilage. Much has been written and said both in favor and also against its use. It must be acknowledged, however, that from a scientific point of view, ensilage can accomplish no more and is of no more value than any other fodder containing the same amounts of food matter; and if fed as is often the case in a moldy, fermented, acid state, its use must be open to very serious objections. The result of investigations in different portions of the country, particularly at the various Agricultural Experiment Stations, has proved that the composition of ensilage is liable to the greatest diversity, depending upon nature of the soil, variety of fodder, time of harvesting and several other minor causes. The feeding value of this material has been summed up in a recent publication as follows:

1st. The value of food preserved in a silo depends very greatly on what was put in, its nature and condition. The material used and the degree of maturity of the crop will greatly affect its value.

2nd. Putting grass, corn stalks, or other substances in a silo, does not add anything to the nutriment contained in the material. We cannot take out what we did not put in. Cutting and storing the green food in a silo may make it more digestible; may, and often does, make it more palatable than when the food is dried in the open air. Letting the moisture dry from meadow grass or from corn stalks, in itself, should not make these substances less desirable as food; in fact, it does make them less palatable. Preserving much of this moisture in the ensilaged food may be a help.

3d. If fermentation goes on in the silo to any considerable extent, there is absolute loss of food value.

4th. Reason and experience alike lead us to conclude that we cannot make ensilaged grass or corn stalks, alone, fully take the place of good grain feed. The latter should be given in connection with the former.

5th. Reason and experience alike show that almost any palatable, nutritious succulent plant, kept in a silo, with reasonable exclusion of the air, makes a palatable and fairly satisfactory food.—*Breeder's Gazette*.

The following table illustrates to a certain extent the effect of food on the quality of milk:

Dairy.	Number of Cows.	FOOD.	Total Solids.	Water.	Fat.	Solids not Fat.	Ash.	Analyst.
1	20	Hay, Brewer's Grains, Bean meal, Ground Corn.....	13.6	86.4	3.6	10.0	.80	J. Carter Bell.
2	25	Hay, Brewer's Grains, Indian Meal, Potatoes.....	12.7	87.3	3.1	9.6	.77	" "
3	11	Hay, Brewer's Grains, Bean Meal.....	13.5	86.5	3.4	10.1	.75	" "
4	20	Hay, Grass, Indian Meal, Brewer's Grains.....	13.5	86.5	3.7	9.8	.77	" "
5	2	Hay, Oat Meal, Corn Bran, Grass.....	12.6	87.4	3.4	9.2	.71	" "
6	19	Bean Meal, Indian Meal, Grains.....	13.5	86.5	3.7	9.8	.73	" "
7	3	Hay, Brewer's Grains, Bean Meal, Ground Corn.....	15.2	84.8	4.7	10.5	.81	" "
8	5	Grass, Indian Meal, Brewer's Grains.....	13.0	87.0	3.4	9.6	.73	" "
9	5	Grass, Bean Meal, Brewer's Grains.....	13.1	86.9	3.2	9.9	.79	" "
10	6	Pea Meal, Mangel Wurzel, Hay, Brewer's Grains.....	12.7	87.3	3.3	9.4	.75	" "
11	4	Meal, Brewer's Grains, Grass.....	13.7	86.3	4.4	9.3	.76	" "
12	6	Bean Meal, Brewer's Grains, Grass.....	14.2	85.8	4.2	10.0	.73	" "
13	6	Bran Meal, Brewer's Grains, Grass.....	14.8	85.2	3.4	11.3	.78	" "
14	16	Bean Meal, Indian Corn, Brewer's Grains, Grass.....	13.2	86.8	3.8	9.4	.70	" "
15	2	Brewer's Grains, Oil Cake, Bean Flour, Grass.....	13.5	86.5	3.4	10.1	.79	" "
16	25	Brewer's Grains, Bean Flour, Hay, Grass.....	13.7	86.3	3.5	10.1	.78	" "
17	8	Brewer's Grains, Hay, Bean Meal, Bran.....	13.7	86.3	3.8	9.9	.77	" "
18	10	Meal.....	12.930	87.070	3.307	9.623	.797	E. E. Calder.
19	56	Cotton Seed, Linseed, Shorts, Hay and Corn Meal.....	12.636	87.364	3.061	9.575	.662	" "
20	25	Hay, Meal, Bran.....	13.214	86.786	3.258	9.956	.728	" "
21	14	Hay, Meal, Shorts, Beets.....	13.091	86.909	2.902	10.189	.717	" "
22	30	Shorts, Meal, Hay, Corn Fodder.....	13.486	86.514	3.807	9.679	.670	" "
23	12	Hay, Meal, Shorts.....	12.881	87.119	2.778	10.103	.706	" "
24	14	Grass, Meal, Brewer's Grains.....	14.006	85.994	2.972	11.034	.768	" "
25	18	Hay, Meal.....	12.194	87.806	3.178	9.016	.647	" "
26	11	Meal.....	14.222	85.778	4.154	10.068	.695	" "
27	18	Grass, Cabbage.....	12.291	87.709	3.135	9.156	.714	" "
28	9	Meal, Shorts.....	12.778	87.222	2.774	10.004	.706	" "
29	18	Meal, Shorts.....	13.089	86.911	3.068	9.421	.709	" "
30	20	Meal.....	12.605	87.395	3.963	8.642	.715	" "
31	10	Rye and Corn Ensilage, Meal, Shorts.....	13.702	86.298	4.161	9.541	.723	" "
32	8	Clover Ensilage.....	14.764	85.236	4.121	10.643	.727	" "
33	10	.....	14.234	85.766	3.427	10.807	.777	" "
34	6	Shorts, Hay, Cotton Seed.....	12.896	87.104	2.892	10.004	.727	" "
35	13	Meal, Shorts, Hay.....	14.749	85.251	5.092	9.657	.679	" "
36	13	Meal, Shorts.....	14.251	85.749	3.649	10.602	.798	" "
37	23	Meal, Brewer's Grains.....	13.381	86.619	3.226	10.155	.689	" "
38	25	Cob Meal, Shorts.....	14.279	85.721	4.083	10.196	.687	" "
39	18	Meal, Shorts, Mangolds.....	12.921	87.079	3.239	9.682	.714	" "
40	22	Meal, Shorts, Linseed Oil Meal, Hungarian Hay.....	12.570	87.430	3.427	9.143	.709	" "
41	10	Meal, Shorts, Hay, Cotton Seed, Carrots.....	12.44	87.56	3.14	9.30	.69	" "
42	13	Grass, Shorts, Meal.....	12.779	87.221	3.460	9.319	.....	" "

*Average Yield.*—Regarding the average yield of cows per day very little positive information can be obtained. Few farmers pay any attention to how many quarts of milk their herd averages, and even the yield of individual cows is unknown except in cases of large and uncommon milkers. Dr. O. C. Wiggin, in his report as Inspector of Milk for the city of Providence for 1869-70, estimates the average

yield of each cow good, bad, and indifferent throughout Rhode Island as 1,856 quarts annually. He further adds that the annual average, taking all cows over a large extent of territory, is a little less than 1,800 quarts. In a paper read before the Society for the Encouragement of Domestic Industry by Gen. Pitman, the following figures occur:

According to the census of 1875 there were in that year in Rhode Island 19,108 milch cows, 1,545 of which were not on farms. The number of pounds of butter made during the same year, ending on the first day of June, was 864,722; pounds of cheese, 48,519; gallons of milk, 2,818,949; persons engaged in agriculture, 11,745. Allowing one quart of milk per day as the amount they would consume, their consumption would amount to 1,071,731 gallons. Experienced writers stated twenty-seven and a half gallons of Ayrshire milk would make twenty-one pounds of cheese, and that from three and three-quarters to four gallons of Ayrshire milk would make a pound and a half of butter. To guard against excessive estimates let it be supposed that twenty-eight gallons of milk are required to make twenty-one pounds of cheese and four gallons to make a pound and a half of butter, the quantity of milk consumed in the production of the butter and cheese returned by the census of 1875 would be: for cheese, 64,788 gallons; for butter, 2,312,592 gallons; milk sold, 2,818,949 gallons; consumed by producers, 1,071,731; total, 6,368,060 gallons produced in Rhode Island by the 19,108 milch cows in the State. That would give an average yield to each cow of a little less than 334 gallons per year.

The Hon. Charles L. Flint, in a work entitled "Milch Cows and Dairy Farming," says: "Yowatt estimates the annual average of an Ayrshire cow to be 850 gallons, but allowing for unproductive cows, he estimates the average of a dairy at 600 gallons for each cow. Aston says that thousands of the best Ayrshire cows, when in prime condition and well fed, produce 1,000 gallons of milk a year. Mr. Rankin puts the amount at about 650 or 700 gallons to each cow, and on his own farms of inferior soil, his dairy produced an average of only 550 gallons."

If farmers of Rhode Island could be induced to improve their stock so that their milch cows would produce this lowest estimate of 550 gallons instead of 334, the amount of milk produced in the State would be increased by 4,127,328 gallons; which, at four cents a quart, would amount to \$660,372.48,—a little more than \$56 to each person engaged in agriculture.

The following abstracts from an address before the National Butter, Egg and Cheese Association, by Hon. George B. Loring, United States Commissioner of Agriculture, contain many interesting and important facts in reference to the dairy interest:

NEW YORK.—1870, cows, 1,350,691; 1880, 1,437,855; increase  $6\frac{1}{2}$  per cent., or 87,194; 1870, butter of farm dairies, 107,147,526 pounds; cheese, 22,769,954 pounds; milk sold in market, 135,776,919 gallons, in all equivalent to 483,813,465 gallons of milk; average per cow, 358 gallons. 1880, butter at farm dairies, 111,-

922,403 pounds; cheese, 8,362,590; milk sold in market, 231,965,533 gallons, in all equivalent to 577,389,097 gallons of milk.

VERMONT.—1870, cows, 189,285; 1880, 217,032; increase, 20 per cent., or 36,748; 1870, butter of farm dairies, 17,844,366 pounds; cheese, 4,830,700 pounds; milk sold in market, 3,835,840 gallons, in all equivalent to 53,104,844 gallons of milk; average per cow, 388 gallons.

MASSACHUSETTS.—In 1880 Massachusetts produced 6,559,161 pounds of butter; 2,265,873 pounds of cheese; and 15,254,057 gallons of milk.

In the Ninth Report of the New Jersey State Board of Agriculture we find the following figures in relation to the dairy interest in that State.

1880.

Number of milch cows.....	152,075
Gallons of milk .....	15,472,783
Reduced to quarts.....	61,891,132
Average of a little over 400 quarts per cow.	

*Effect of Breed.*—The breed of the cow in many cases greatly influences the yield of milk. In an article entitled the Milch Cow in West Jersey by S. Betts, (IX Agr. Report, N. J.,) the following figures are given in relation to the yield of milk from pure blooded cows: “Reliable reports have shown that a good herd of Jerseys will average 250 pounds of butter per cow. Exceptionally fine herds have made 350–400 pounds. Allowing nine quarts of milk to a pound of butter, it follows that these same herds must have produced 2,250–3,600 quarts per cow. My own herd of pure Guernseys and Jerseys averaged 2,100 quarts, beside what was fed to calves, during the year 1880.”

The Scientific American (Aug., 1877,) contains the following comparison as milkers of the Native and Ayrshire stocks:

#### NATIVES.

The average yield of dairies in New York is.....	1,300 quarts.
The average yield of the best dairies is.....	1,800 “
The possible yield of the best dairies is.....	2,300 “

#### AYRSHIRES.

Under circumstances that will allow the best selected and culled native cattle to produce.....	2,080 quarts.
A good Ayrshire breeding herd will produce.....	2,590 “

The facts are also presented in another form :

	Native Cattle.	Ayrshire
Class I. Common average.....	1,300	2,000
Class II. Average of best dairies.....	1,800	2,500
Class III. Possible average.....	2,300	3,000

Here is a common difference of 700 quarts in each class, and these figures, 700, probably represent the difference between native and Ayrshire cattle of similar quality in their respective breeds, and may be assumed as a constant for New York and New England.

The following table gives the average production of milk by various breeds, made from the observations of various authors. (IX Agr. Rep., N. J.):

	Average quarts per year.	Average days in milk per year.
Holland (Holstein).....	3,859	340
Flanders or Flemish.....	3,457	340
Norman.....	3,590	340
English short horn.....	3,070	255
Swiss.....	3,043	340
Jersey (Alderney).....	2,038	340
Ayrshire.....	2,001	285
Brittany ....	1,806	285

#### PRESERVATION OF MILK.

Milk is a most valuable article of food for all classes of individuals, the best methods therefore of preserving or preventing decomposition is a matter of the greatest importance. One of the most essential, if not the most essential aid to the keeping qualities of milk, is the exercise of the greatest possible cleanliness in all things pertaining to the dairy. In speaking of the duties of an Inspector some writer has stated, and with considerable truth, "that if that officer is needed anywhere in connection with the dairies to protect buyers of milk, it is in the cow stalls and barn yards, to enforce cleanliness and such care as will secure the health of the cows that give the milk." Speaking of the proper management of milk Dr. Voelker makes the following remarks, (Amer. Chem. V. 413,) "by observing the following simple rules, country milk may be sent by rail on long journeys without spoiling even in very hot weather:

1. The milk should be drawn from the cow in the most cleanly manner, and strained through wire-cloth strainers.

2. The milk should be thoroughly cooled immediately after it is drawn from the cow. This may be done by a milk-cooling apparatus specially constructed for rapidly cooling milk, or by simply placing the can in which it is contained in a vat of cold water deep enough to cover up to the height of the milk in the can containing it, and by using at least three times as much cold water as the milk to be cooled; the milk should be occasionally stirred until the animal heat is expelled. The milk should be cooled down as rapidly as possible to a temperature of about 55°.

3. The evening's and morning's milk should be cooled down separately, and be sent in separate cans, and not mixed together if it can be avoided.

4. No milk should be kept over to deliver at a subsequent time.

5. The pails and strainers employed on the farm should be thoroughly cleaned, scalded in boiling water, and dried morning and night.

6. Immediately before the milk is placed in the cans they should be thoroughly rinsed with clean cold water, and great care be taken to keep the cans and milk free from dirt or impurities of any kind. When the cans are not in use they should be turned down on a rack with the tops off.

7. Before the cans are returned to the country they should be thoroughly rinsed out with clean water and scalded with boiling water.

8. In very warm weather it is well to put the cooled milk in cans covered over with a coarse flannel casing, which may be kept wet for a considerable time.

*Effect of thorough Cooling.*—The most common complaint heard during the warmer months of the year is, that “the milk don’t keep.” While it is no doubt true in many cases that the souring of the milk is due to carelessness or neglect on the part of the seller, it is also true that the ignorance of the farmer regarding the best method of the preservation of milk has much to do with its keeping qualities. This matter has received considerable attention during the past few years at the hands of chemists and others, and the result of numerous experiments go to show that not only will a thorough cooling of the warm milk prevent premature souring, but it will also maintain the milk in a sweet condition for a much longer time than would be thought possible. In a paper entitled “Influence of Cold on the Curdling of Milk,” (Dingler’s *Polytechnisches Journal*, cexxiii, 329), the record of experiments show that “by preserving milk in ice-water at 1° to 2° Centigrade, [34°—36° Fahrenheit] for some time, it remains perfectly sweet for fourteen days. After seventeen days it began to taste slightly sour, the rancid taste increasing, until after twenty-eight days the milk was curdled when boiled. After thirty-four days it curdled in ice-water.”

In explanation of the reason of this wonderful preservative prop-

erty of the application of cold on milk and its products, Eug. Tisserand (comp. rend. lxxxii) concludes that "while it is impossible to offer a satisfactory explanation as to the reason why artificial cold should exert a beneficial effect upon the yield and quality of the products derived from milk, it is probable that it may tend to arrest that fermentative decomposition which is so prone to set in with organic liquids, and thus by preventing incipient alteration indirectly to improve the quality of the material."

*Effect of Heat.*—The effect of heat is almost as remarkable, as application of cold, on the preservation of milk, as seen by the following statements of Schreiner, (Land. Versuchs. St. xxii.) "boiled milk does not coagulate spontaneously so soon as unboiled milk; whilst on the contrary boiled milk requires 10 to 12 per cent. more acid to coagulate it than unboiled milk does. The amount of rennet which serves to curdle fresh milk is insufficient to curdle one-tenth the amount of boiled milk, even when applied ten times as long, and at the same temperature, (35° cen.)"

*Use of Mineral Preservatives.*—While not at all recommending nor considering the use at all desirable of mineral substances as preventatives of the fermentation of milk, it may be of interest to mention that the following substances have been proposed, and in some cases actually used, to prevent the decomposition of milk. These are salicylic acid, sodic thiosulphate, or hyposulphite of soda, sodic sulphite, borax, and boric acid. In examining these various substances and their action upon milk, A. Hirshberg (Arch. Pharm.) states: "In comparing the antiseptic properties of borax and boric acid with sodium sulphite and thiosulphite, of preserving milk fresh, it was found that with the sulphite and thiosulphite, fermentation set in after the fifth day, whereas with borax and boric acid the milk was sweet after twenty days, having only a scum on its surface."

It must, however, be remembered that notwithstanding the wonderful preservative properties of borax and boric acid, and their non-poisonous qualities when used in small amounts, the fact that large quantities of either act as a poison, must necessarily prohibit their use by the dairyman; and more especially so when we take into consideration the careless and indifferent manner with which they would naturally be employed.

CAUSES AFFECTING THE QUALITY AND CHARACTER OF MILK SUPPLIED ANY CITY.

*Improper Food.*—Milk is an invaluable article of diet, and as such it is of the first importance that it be properly preserved and kept in its natural normal condition. Aside from careless and indifferent handling and management, there are a variety of causes which exert considerable influence upon the taste, smell and physical condition of milk. Milk is most susceptible of taint, improper food or even rich, nourishing food fed carelessly, rapidly contaminates the milk, rendering it if not injurious at least much less palatable. Much of this abnormal condition of milk could be easily and completely prevented by the exercise of a little common sense and the application of the knowledge which experience ought to have secured the producer regarding the character and use of the ordinary feed stuffs. There are instances, however, when taste, smell or color are imparted to milk through accidental feeding and for which no blame can be directly attached to the farmer.

The Agricultural Museum of Berlin, exhibited at a Dairy Exhibition a collection of plants which influence the different products of the dairy. The catalogue includes the following list. (Scien. Amer. XLII, 74):

1. Plants which coagulate milk:

Aspidosperma quebracho,	milky juice and fruit of.
Carica papaya,	Papaw tree, milky juice and unripe fruit of.
Cirsium arvense,	Canada Thistle.
Cynara cardunculus,	Chardoon.
Ficus carica,	Fig.
Oxalis acetosella,	Wood Sorrel.
Piper nigrum,	Black Pepper.
Quercus infectoria,	Gall Oak.
Rumex patientia,	Garden Patience.

2. Plants which prevent the coagulation of milk:

Cochlearia armoracia,	Horse Radish.
Pinguicula vulgaris,	Common Butterwort.
Sinicula Europaea,	Wood Sanicle.

3. Plants which are used to color butter and cheese:

Bixa orellana,	Annatto.
Calendula officinalis,	Marigold.
Carthamus tinctorius,	Safflower.
Crocus sativus,	Saffron.
Curcuma longa,	Turmeric.

Crozophora tinctoria,	Turazol.
Daucus carota,	Carrot.
Morus tinctoria,	Fustic.
Galium verum,	Yellow Bedstraw.

## 4. Plants which are used to flavor cheese:

Melilotus cœrulea,	Blue Melilot.
Penicillium glaucum,	Blue Penicillium.

## 5. Plants used to prevent rancidity in butter:

Rumex Abyssinicus,	Abyssinian sorrel.
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## 6. Plants which impart to milk a peculiar color after being eaten by cows:

a. Reddish,	
Galium verum,	Yellow Bedstraw.
Rubium tinctorium,	Madder.

Also, species of Carex, Scirpus, Equisetum, Ranunculus, Euphorbia, and the young twigs of Pine, etc.

b. Yellowish,	
Daucus carota,	Carrot.
Rheum palmatum,	Rhubarb.

c. Blue,	
Anchusa tinctoria,	Alkanet.
Butomus umbellatus,	Water Violet.
Melampyrum arvense,	Purple Cow Wheat.
Mercurialis perennis,	Perennial Mercury.
Polygonum aviculare,	Common Knot Grass.
Polygonum Fagopyrum,	Buckwheat.
Rhianthus major,	Yellow Rattle.

## Plants which impart a peculiar, often acrid, taste to milk:

Allium ursinum,	Ramsons.
Artemisia absinthium,	Wormwood.
Brassica napus,	Rape.
Brassica rapa,	Wild Turnip.
Euphorbia cyparissias,	Cypress Spurge.
Gratiola officinalis,	Hedge Hyssop.
Helleborus niger,	Black Hellebore.
Matricaria Chamomilla,	German Chamomile.
Zea mays,	Maize.

*Careless Treatment in the Hands of Dealers.*—But aside from any accidental peculiarity due to any of the above causes it is very evident that quite a large quantity of milk is rendered unfit for food through the improper care of both dealer and consumer. In this regard there appears to be in many cases a universal unconcern, the consumer being about as indifferent to the quality of the milk as the producer is to the quality of the cow. The great majority of dealers buy their milk, and knowing but little in reference to its properties give it the

same attention that they bestow upon other produce. Nothing is more common during more especially the warmer months, than "burnt" milk, or milk that through closing in tight cans before thoroughly cold, in part putrefies and acquires a disagreeable taste and smell. Milk very often gives rise to complaint because of partial churning which fills the can with small lumps of fatty and cheesy matter. This condition of the milk is often due to carting for a long distance over rough roads, the churning being greatly assisted by imperfect filling of the cans. For milk brought from a distance, the "plug top can" would seem preferable, as the stopper fitting tightly and resting on the surface of the fluid prevents all slashing or otherwise shaking up of the milk. Careless milking and more careless straining are very prolific causes of dissatisfaction, and often cause really good rich milk to be classed as unfit for food.

*Mismanagement by Consumers.*—At the hands of consumers there is manifested a much more remarkable indifference in the management of milk. Milk is very often received in the same vessel that contained the supply of the day before, in many cases mixed with it. Scalding of the pitchers or other vessels for holding milk is too often neglected or very imperfectly done. Numerous samples have been brought to notice, the life giving properties wholly destroyed through neglects of this kind. Milk is allowed to remain upon the door-step exposed to the direct rays of a summer's sun until late in the forenoon. It often remains in the kitchen in open vessels, and in contact with all the vapors and odors incidental to cooking. Milk is very commonly placed in the same apartment of the ice-chest containing cabbage, turnip and other foods with strong and peculiar odors. In view of these and many other examples that experience has brought to light it is not at all strange that a most common complaint regarding milk is, that it is diseased or poisoned or has caused sickness in one or more members of the families using it. Considering the great extent to which milk is used as food and nourishment for children and invalids, it would seem the most important duty of the house-keeper to exercise the greatest possible care and attention in preserving it in its normal healthy condition.

#### DISEASED MILK.

In the majority of the diseases of the cow, suppression of the milk is among the earlier symptoms, therefore in the milk supplied any city it is seldom that any abnormal secretion is detected. Even the

detection of bloody milk, resulting either from Garget or injury, owing to its great dilution with other milk is a matter of considerable difficulty. Our knowledge of the milk from diseased animals is therefore very imperfect not only as regards its distinctive difference from perfectly healthy milk, but also as regards its effect when taken into the system as food. Aside from the fact that milk may be rendered dangerous to health through disease in the cow, it is much more frequently the case that milk injures health by becoming a carrier of disease, as in the majority of cases of scarlet fever and typhoid epidemics reported from time to time, and which have been traced directly to the milk supply. Regarding the physical condition of milk from diseased cows, Dr. A. W. Blyth, (Practical Chemistry,) states that,—

The milk in anthrax and anthracoid diseases is said to be of a dirty bluish color, streaked with blood, and soon becoming putrid. Diarrhœa has been produced from its use.

The milk of cattle suffering from pleuro-pneumonia has been drunk with impunity, and the same may be said of that from cattle suffering from the cattle plague. In such diseases, however, there is nearly always early suppression of the secretion, and but little is known of the chemical qualities of the fluid. Milk derived from rabid cows, also, does not appear to be hurtful, but here again little is known of the matter.

In reference to the chemical properties of diseased milk or the milk from diseased cows, the following quotation from a paper entitled "The Composition of Cow's Milk in Health and Disease," by Dr. A. W. Blyth, (Jour. Chem. Soc. 35,) contains about all that is known in regard to the matter:

"If the idea should be in part or wholly true, that consumption and similar maladies may be transmitted to man by the ingestion of milk from diseased cows, some method, whether physical or chemical, of distinguishing such milks, becomes of the most vital importance. \* \* \* \* So far as the analyses to be quoted go, they rather appear to show that a cow, even suffering from very acute disease, may give milk differing in no essential feature from normal milk, while on the other hand, trivial and severe local affections of the udder, characterized by bloody or purulent discharges, are easily to be recognized by the presence of such products in the milk." The above paper also contains the following analyses of diseased milk:

#### PARTURIENT APOPLEXY.

A cow suffering from parturient apoplexy; pulse imperceptible; temperature,

99.4°. Third day after calving. Specific gravity, 1.037. Reaction feebly alkaline.

	In 100 c. c.
Milk Fat.....	3.750
Caseine.....	4.025
Albumen.....	1.145
(Weight Mercury precipitate).....	1.38*
Ash.....	.980
Na Cl in Ash [common satl].....	.102

Urea was absent; there was much lachtocrome. No abnormal elements detected by a microscopical examination.

#### MAMMITIS.

A heifer, second day after calving, suffering from acute mammitis.

	In 100 c. c.
Milk Fat.....	2.800
Caseine.....	4.025
Albumen.....	.560
Milk Sugar .....	5.541
Mercury precipitate dried at 100°.....	1.68*
Ash.....	.920
Na Cl in Ash [common salt].....	.920

#### PNEUMONIA.

The milk of a cow suffering from pneumonia, fourteen days after calving. Pulse, 82. Temperature, 102.4°. Specific gravity, 1.0297.

	In 100 c. c.
Milk Fat.....	2.965
Cholesterin....	.580
Caseine.....	3.860
Milk Sugar.....	3.880
Albumen.....	.430
Galactin.....	.090
Urea.....	.005
Ash.....	.800
Na Cl in Ash [common salt]....	.488

This is the only milk in which I have found cholesterin. The microscopical results were negative.

#### ENGORGEMENT OF RUMEN AND CONGESTED LIVER.

Pulse, 68. Temperature, 101°. Specific gravity, 1.032.

	In 100 parts by weight.
Milk Fat.....	6.057
Caseine.....	4.796
Albumen....	1.067
Milk Sugar.....	4.497
Galactin.....	.113
Ash.....	.670
Na Cl in Ash [common salt].....	.092

The milk appears simply concentrated.

\* At the time of the analysis the compound nature of the mercury percipitate was not known.

## PHTHISIS.

A cow five years old, with extensive tubercular deposit in right lung. The dam was also scrofulous.

Specific Gravity.	Dec., 1878.	Feb., 1879.
	In 100 c. c.	In 100 c. c.
Milk Fat.....	2.770	3.830
Caseine.....	3.650	5.400
Albumen.....	.867	.365
Milk Sugar.....	2.824	3.340
Alkaloids ..	?	?
Ash ...	.866	.770
Na Cl in Ash [common salt].....	.096	.150

A careful microscopical examination could detect no abnormal elements.

## PHTHISIS.

A cow two years old in an advanced stage of phthisis.

Specific Gravity.	Jan., 1879.	Feb. 1879.
	In 100 c. c.	In 100 c. c.
Milk Fat.....	2.599	3.280
Caseine.....	3.000	3.980
Galactin .....	?	.250
Milk Sugar.....	2.888	4.100
Ash.....	.910	.780
Na Cl in Ash [common salt].....	.100	.15

The entire amount the cow yielded in January was one gallon.

A sample of milk drawn from an udder actually infiltrated with tubercular deposit.

Specific gravity, 1,018.

	In 100 parts by weight.
Water.....	94.640
Caseine.....	1.210
Albumen.....	2.387
Milk Sugar.....	.470
Milk Fat.....	.490
Alkaloids.....	absent.
Urea.....	.039
Ash.....	.764
Na Cl in Ash [common salt].....	.430
Nitric acid in combination.....	.018

The whole quantity of the fluid did not exceed 70 c. c. It was of a dirty amber color, with the caseine partially separating.

A microscopical examination showed very few fat globules, and the following abnormal elements:

1. Clusters of oval, or round granular cells, for the most part .005 inch in diameter, with a well marked oval nucleus.

2. Granular masses, irregular in shape, varying in size from about .0006 inch, to ten or twelve times that size.

3. Granular rounded bodies, stained brilliantly by magenta or carmine.

This, then, is phthisical milk in its most intense form, and one never likely to be found in commerce, but admixture of such a fluid with genuine milk is possible.

It is essentially an albuminous serum, containing urea, small quantities of nitrates, common salt, and just sufficient caseine and milk sugar to show its origin from a much diseased milk-gland. The absence of alkaloids is noteworthy.

#### LOCAL AFFECTION OF THE UDDER.

Milk from a heifer two days after calving, suffering from retention of foetal membrane, a portion of the udder much inflamed.

The milk was pink in color, and contained about a twentieth of its bulk of blood; it was perfectly fresh when examined, but rapidly putrefied. The blood was separated by subsidence as much as possible. The reaction was feebly acid.

Specific Gravity.....	1.0313
Milk Fat.....	4.40
Caseine,                    {	
Milk Sugar,                {	9.81
Albumen.....	.62
Galactin.....	.269
Ash.....	1.16

#### SKIMMED MILK.

The greatest evil with which the milk business is to-day afflicted is that of skimming, or "topping." Notwithstanding the denial of most milkmen of engaging in the sale of cream, cream is sold, and during the warmer months of the year, sold in large quantities. This practice exerts a strong influence upon the average richness of the city supply; for the supply of milk remaining fixed, the removal of the cream from one-third of the whole supply, reduces in a very perceptible degree the percentage richness of the remainder. Were the consumers of the cream the users also of the skimmed milk, no objection would be taken; but as the contrary is the fact, the milk less the cream being sold to stores in certain portions of the city, and delivered to the poorer classes, the evil is greatly increased. The question of providing a remedy is a very difficult one, and one which, at present, it is apparently impossible to answer. The great difference in cow's milk, particularly in the milk from cows of different breeds, renders it impossible to adopt any standard percentage for cream; nor would it seem, from the difficulty in making all the cream

rise, especially after the milk has been frozen, advisable to fix by law an arbitrary standard for cream. The only plan which appears to promise any good effect is the establishing by law of a limit for the minimum percentage of butter fats in milk. From the fact that skimming, or otherwise removing the cream from milk that has remained at rest for even only a few hours, exerts a very marked influence upon the percentage of fat in the remaining milk, it is believed that the following section of the amended milk law will in a short time produce good results and prevent much of the excessive skimming practiced for some years past :

SECTION 2. Every person who shall sell, exchange or deliver, or shall have in his custody or possession with the intent to sell or exchange or deliver, for himself or as the employé of any other person, milk from which the cream or any part thereof has been removed, or which shall not contain two and one-half ( $2\frac{1}{2}$ ) per centum of milk fat, shall distinctly mark, in letters not less than one inch in length, in a conspicuous place above the centre, upon the outside of every vessel, can or package containing such milk, the words "skimmed milk," and such milk shall only be sold in or retailed out of a can, vessel or package so marked.

#### MILK INSPECTION AND EXAMINATION.

The milk supplied the city of Providence, and probably that supplied any city, has been found to belong to one of four classes.

Class I. Milk of extra quality, with few exceptions milk raised in the immediate vicinity, and supplied directly to families. Samples of this class yield, on analysis, over 14 per cent of solids, and contain from 5 to 15 per cent. of butter fats.

Class II. Good milk including the larger amount supplied to families and the better grade of store milk. They contain from 12 to 13 per cent. of solids and from 3 to 4 per cent. of butter fats.

Class III. Medium and doubtful milk, comprising the larger part of store milk, in some cases skimmed, not necessarily adulterated, but yielding, on analysis, percentages so nearly approximating the adopted standard as to cause a doubt regarding their genuine nature. Samples of this class contain about 12 per cent. of solids and a fraction over 2.5 per cent. of butter fats.

Class IV. Poor milk, or milk that has been skimmed, watered, or from any other reason made unfit for food.

In the systematic examination or inspection of the milk supplied any city recourse is had to one or both of the following methods:

First, By use of the lactometer.

Second, By chemical analysis.

*Testing by the Lactometer.*—First. Testing by the Lactometer. This instrument is simply the hydrometer applied to milk. It merely shows, and indicates nothing more, the weight at a certain fixed temperature, of a certain bulk of the milk as compared with the same bulk of water at the same temperature, in other words gives the specific gravity of the milk. Considerable discussion has arisen of late years regarding the reliability of this instrument in deciding the character of different samples of milk. Much of it has been occasioned by a mistaken idea as regards what the instrument was intended to indicate, together with the prevailing idea among the users that the readings were to be taken alone to the exclusion of every other physical test. It merely shows specific gravity, but taken in connection with the taste, smell, color and general appearance of milk, the lactometer cannot fail to be of great service in examining the milk from any dairy, or the supply of any large city.

In a discussion regarding the worth of the lactometer in detecting adulteration of milk, and reported in the *New York Herald*, April 24, 1880, Dr. J. Blake White, Chief Milk Inspector of New York, states: “When the dilution of milk alone is to be considered, the most rapid and practical indication of this is by the determination of the specific gravity. It is forgotten by those who recommend analysis as the only safe and sure way of detecting adulteration, that in any case it is necessary to fix a limit for the component parts of milk before it is possible to arrive at any definite conclusion as regards adulteration. \* \* \* \* \* In both cases a limit for the normal amount of water present is to be fixed, an excess being treated as an adulteration. It is just as practicable to fix this limit in the one case as in the other; and this therefore removes all objection to the specific gravity as a test for diluted milk. If it were claimed, which is not the case, that the lactometer indicates the quality of every specimen of milk, no matter what the means practiced for its deterioration, then might its use be condemned with some degree of conscientiousness; but when its efficiency is claimed for detecting simply the dilution of milk when no other fraud is practiced, and when this dilution has been carried beyond a certain fixed and safe limit, no unbiased mind can regard the lactometer any less a guide than evaporation and weighing.” In this same discussion, Dr. Henry Mott, of New York writes as follows: “\* \* \* Milk is a fluid containing several constituent elements, all of which are subject to fluctuations between certain limits; and between these limits milk may be tampered with and defy all science to detect the fraud. Fortunately, however, the

amount of possible adulteration between these limits is quite small, and the consumer would be thankful if the milkman would stop there; but unfortunately this is not the case. Milkmen would not take the trouble of mixing water with their milk unless they could use a respectable quantity. Science can, fortunately, detect such additions, but the lactometer is the only practical means by which all the milk of a great city can be examined every day. Chemical analysis can also detect it, but while the lactometer takes only a few minutes to decide the fact, in connection with the senses, chemical analysis requires many hours, and also requires a scientific chemist to conduct the examination. \* \* \* The minute a property of a substance is found which is constant, or which fluctuates between definite limits, that minute that property becomes a standard for the detection of adulterations. The specific gravity of milk is found to be such a property, and it is on the specific gravity that lactometers are founded. Pure commercial milk has a specific gravity varying from 1.029 to 1.040. The specific gravity never falls below 1.029. This has been demonstrated from the examination of milk from eight hundred and forty-eight cows, not one of the cows giving milk of a lower gravity. It is for this reason that the 100 mark on the standard lactometer corresponds to this specific gravity. It must not be thought, though, that because milk has the gravity of 100 degrees (1.029), that it is rich, or that it is poor. It is true that it must be one or the other; but it is also true that the senses must determine the fact. If milk contains considerable fat, it may test 100, or if it be poor in fat and contain considerable water, it may test 100. In the first case it will be rich and thick, while in the second it will be poor and thin, which characteristics an expert can readily distinguish. Milk possessing a high specific gravity may be watered until its gravity is reduced to 100 degrees, and the lactometer cannot detect it, but the senses can. \* \* \* \* The milk should be examined as to its opacity and color, flavor and odor. These common sense tests, combined with the indications of the lactometer, will enable a milk expert to detect all practicable adulterations perpetrated by milkmen." After further discussion, Dr. Mott concludes by saying that, "after a careful examination of the subject by persons competent to express an opinion, it is conceded that the lactometer used in connection with the senses, will detect in a few minutes the practical frauds of the milkmen. Chemical analysis is valuable to verify the results of the lactometer, but is of little or no value for the examination of the hundreds of samples of milk which have to be examined daily in a city as large as New York."

Through an experience of over five years in examining the milk supplied the city of Providence the lactometer has been applied to many thousands of samples of milk, but in no case has its readings caused any injustice to the milk dealer. The only two possible causes for a low reading are, an excess of cream, or an excess of water. To be able to properly distinguish between cream and water is not a very difficult matter. Cases may and do arise in which through skimming and watering the lactometer reading may be right, the judgment cannot be passed without considering taste, smell, general appearance, etc. Except in very rare cases milk should not be condemned solely, on account of its lactometer reading.

*Testing by Chemical Analysis.*—Second. A more or less complete chemical analysis is often necessary, having in view not so much the comparative richness—that has already been determined by the lactometer, and also because only those samples rendered doubtful by the lactometer are subjected to analysis—but rather the percentage composition of the essential constituents and the detection of foreign substances. Many improvements have been made in our methods of milk analysis, which aside from perfecting the processes for the detection of the substances in use for the adulteration of milk have also revealed the exceeding complex composition of this fluid. A complete analysis of milk is rarely necessary. The following scheme will almost always enable the analyst to base an opinion as to the true character of any given milk. Specific gravity preferably by actual weighing. Total Solids, Fats, Solids not Fat, and Ash. In most cases a further examination as to the character of the mineral portion or the ash is of value. The microscope is also very often brought into service more particularly in cases of supposed diseased milk. Of the many foreign substances recorded as having been detected in milk it is probably true that the only one universally employed is water with its necessary attendant burnt sugar.

#### LAW REGULATING THE SALE OF MILK.

*Necessity of a Definite Standard.*—Milk is one of the necessities of life, the quality therefore is important, making it essential that a safe and proper standard be generally acknowledged. The liability of adulteration is so great that it becomes a matter of considerable consequence how to prevent it. At the outset we are met with the fact that there is no absolute protection against fraud beyond the honesty of the producer. States enact laws, but they guarantee

protection only to a certain limit. In all cases the milk from the poor half-starved or diseased cow is paraded as the pattern of excellence. Whatever the clamorings and discontent of the farmers and their inability to compete with a class of milk found in every city supply, the blame is entirely theirs. They allow their stock to deteriorate, they select and buy great milkers, by forcing and over feeding they obtain an abnormal secretion, and then wonder when the reaction comes. Whether they acknowledge it or not the farmers of this class fix the standard by which milk sold in any city must be judged. There are, it is gladly acknowledged, many farmers of an entirely different stamp, whose milk is from healthy, well fed animals, and of superior richness, but they have to suffer for the others. In judging of all milk the poor exception necessarily ranks 100.

*How the Standard is Obtained.*—In deciding the genuineness of any given sample of milk the analyst is obliged to make use of an arbitrary standard either fixed by law or adopted as the result of experiment. This standard is intended to represent the average composition of pure milk, and is therefore obtained by the analysis of as many samples of pure milk as is possible. The one factor in milk analysis remaining most constant in all kinds of milk is the “Solids not Fat,” and it is on this determination that the chemist is enabled to approximately judge of the character of any given milk. Analyses made by chemists in all parts of the world and representing the milk from thousands of cows reveals the fact that rarely in genuine milk does the solids not Fat fall below 9 per cent. nor the fats below 2.5 per cent. This is fully illustrated by the following table:

	Solids.	Water.	Fat.	Solids not Fat.	Number of Samples.
Vernois and Becquerel.....	14.17	85.76	4.51	9.66	46
C. A. Cameron.....	13.00	87.00	4.00	9.00	40
S. Macadam.....	12.04	87.96	2.42	9.62	44
Alex. Muller.....	12.81	87.19	4.05	8.76	59
O. C. Wiggin.....	14.08	85.92	4.01	10.07	58 cows.
H. W. Vaughan.....	14.29	85.71	4.96	9.33	30
Macadam.....	12.27	87.73	2.58	9.69	66
Carter Bell.....	13.80	86.20	3.70	9.90	181 cows.
J. Carter Bell.....	13.54	86.46	3.65	9.88	183
Wanklyn, country milk.....	12.45	87.55	3.07	9.38	average.
“ town milk.....	14.06	85.94	4.01	10.05	“
S. P. Sharples.....	14.15	85.85	4.62	9.53	34
E. E. Calder.....	12.31	87.69	3.08	9.23	27
C. F. Chandler.....	12.55	87.45	3.83	8.72	1700 qrts.
E. E. Calder.....	12.77	87.23	3.32	9.45	440 cows.

*Objections to any Fixed Standard.*—There will always be more or less dissatisfaction in regard to a legal standard, be it high or low.

Prominent among the many objections raised is, “the State has no right to fix by law a limit to the minimum quality of milk.” If, says the dealer, if I obtain milk directly from the cow I have a perfect right to sell the same even if by analysis it is shown to be below legal standard. This objection though apparently plausible is seen in its proper light when it is considered that it is never advocated by the honest farmer, nor even raised by the dealer except in cases of sure and excessive watering. All dairies it is claimed contain one or more cows giving milk in large quantities, but which is extremely thin and poor in quality. It appears very remarkable that in the course of his inspections the Inspector always obtains possession of the identical can containing one cow’s milk, and that cow one whose milk was watered before it was drawn. Granting that such exceptional cases occur it must be acknowledged that inasmuch as the milk supplied any large city is always derived from a number of cows, no results obtained by the analysis of milk from a single cow should be admitted as furnishing even a comparison much less furnishing a standard. Moreover as most of these cases of abnormal milk are from half-starved or diseased animals, they should have no weight

whatever, as the public has the right to insist that the milk they buy be from healthy, well fed cows.

The unjustness of the whole matter is in the inability of the law to place the standard sufficiently high to cover all cases of adulteration. The standard adopted must of necessity approximate the average of pure milk and not as the opponents would have us think, equal but not surpass the poor exceptional abnormal milk. Reduce the standard to the latter limit, and it would offer a premium for watering and reduce the whole matter to an absurdity. That the standard adopted by the State is not above the average, is proved by statements of eminent authorities and experts. Wanklyn, an eminent English authority writes, "it may be accepted as a well established fact, that cows' milk does not contain less than 11.5 per cent. of solids, and seldom less than 12 per cent." Dr. Cameron, another English expert writes (Analyst VI.,) "I think there is the strongest proof that milk on the average contains more than 13 per cent. of solid matters. During the last sixteen years I have examined an immense number of specimens of this fluid, and when I was certain that it was pure, I invariably found it to contain more than 12 per cent. of solids." J. Carter Bell (Analyst II, 155,) in an article giving the results of the analysis of the milk from 183 cows, from 17 dairies, writes as follows: "In examining this large number of milks I have been careful in obtaining the particulars of the food with which the cows were fed, and though the food does exercise a considerable influence upon the milk, yet I may safely say that no milk dealer could reduce his dairy milk down to the society's standard, (9 per cent. solids not fat, and  $2\frac{1}{2}$  per cent. fat,) without half-starving his cows. Ordinary poor feeding does not reduce the quality of the milk so much as some chemists would have us believe, for I have examined the milk of cows which were said to be half-starved, and though the milk was decidedly lower in quality than the milk from other cows, yet it did not come nearly so low as the standard given by the Society of Public Analysts. It seems absurd to think that large cow keepers should be so blind to their own interests, that they wilfully injure their cows by not giving them food enough to eat, and it will be seen that out of the 17 dairies which I have examined not one is so low as 9 per cent. of solids not fat, and 2.5 per cent. of fat. It is true that a man who only keeps one cow may sell milk, and it is just possible that this cow, through bad food or bad health may give inferior milk, but I do not think that an exceptionable case like this should be taken into account in fixing the standard of milk."

## PUBLIC STATUTES, CHAPTER 127. OF MILK.

SECTION 1. Milk shall be sold by wine measure, and all measures used in the sale of milk shall be sealed by the Sealer of Weights and Measures of the town where the person so using the same shall usually reside; or of the town where such milk shall be measured for use; and every person violating the provisions of this section shall forfeit ten dollars for each offence.

SEC. 2. The Mayor and Aldermen of any city, and the Town Council of any town, may annually elect one or more persons to be Inspectors of Milk therein, who shall be engaged to the faithful discharge of the duties of their office. Every Inspector shall give notice of his election, by publishing notice thereof for two weeks in some newspaper published in the city or town from which he shall be appointed; or, if no newspaper be published therein, by posting up such notice in two or more public places in such city or town.

SEC. 3. Every Inspector shall have an office and a book, for the purpose of recording the names and places of business of all persons engaged in the sale of milk within his limits. He may enter any place where milk is stored or kept for sale, and examine all carriages used in the conveyance of milk; and whenever he has any reason to believe any milk found by him is adulterated, he shall take specimens thereof and cause the same to be analyzed or otherwise satisfactorily tested, the result of which he shall record and preserve as evidence; and a certificate of such results, sworn to by the analyzer, shall be admissible in evidence in all prosecutions under this chapter. The Inspector shall receive such compensation as the Mayor and Aldermen or Town Council shall determine.

SEC. 4. Whoever engaging in, or being engaged in the business of selling milk and conveying of the same for sale, neglects to cause his name and place of business to be recorded in the Inspector's book, and his name legibly and conspicuously placed, and constantly kept, upon all carriages and vehicles used by him in the conveyance of milk, or in the sale thereof, and whoever, being engaged in the business of selling milk and conveying of the same for sale, shall neglect to renew such record annually, between the first day of February and the first day of March, in each year, shall forfeit twenty dollars for the first offence, and for a second and each subsequent offence fifty dollars; and whoever offers for sale milk produced from cows fed upon the refuse of distilleries, or any substance deleterious to the quality of the milk, or whoever offers for sale milk produced from sick or diseased cows, shall forfeit twenty dollars for the first, and fifty dollars for every subsequent offence; and whoever, in the employment of another, violates any provision of this section, shall be held equally guilty with the principal, and suffer the same penalty.

SEC. 5. Whoever sells or exchanges, or has in his possession with intent to sell or exchange, or offers for sale or exchange as pure milk, adulterated milk, skimmed milk, or milk from which the cream or any part thereof has been removed, or milk to which water or any foreign substance has been added, shall, for each offense, be punished by a fine not less than twenty nor more than one hundred dollars.

SEC. 6. Every Inspector of Milk shall institute complaints on the information of any person who shall lay before him satisfactory evidence on which to sustain the same.

SEC. 7. Every Inspector of Milk shall cause the provisions of this chapter to be published in the town, at least three times, in some newspaper printed in said town, or some newspaper in the county in which the town is situated.

SEC. 8. Every Inspector shall cause the name and place of business of all persons convicted under this chapter, to be published in two newspapers printed in the town or county where the offense may have been committed.

AN ACT in Amendment of and in addition to Chapter 127 of the Public Statutes, "Of Milk."

[Passed March 23, 1882.]

*It is enacted by the General Assembly as follows :*

SECTION 1. Section 5 of Chapter 127 of the Public Statutes is hereby amended so as to read as follows:

"SEC. 5. No person shall sell or exchange or have in his possession, with intent to sell or exchange, or offer for sale or exchange, adulterated milk or milk to which water or any foreign substance has been added."

SEC. 2. Every person who shall sell, exchange or deliver, or shall have in his custody or possession with the intent to sell or exchange or deliver, for himself or as the employé of any other person, milk from which the cream or any part thereof, has been removed, or which shall not contain two and one-half ( $2\frac{1}{2}$ ) per centum of milk fat, shall distinctly mark, in letters not less than one inch in length, in a conspicuous place above the centre, upon the outside of every vessel, can or package, containing such milk, the words "skimmed milk," and such milk shall only be sold in or retailed out of a can, vessel or package so marked.

SEC. 3. In all prosecutions under this act, if the milk shall be shown upon analysis to contain more than eighty-eight per centum of watery fluids, or to contain less than twelve per centum of milk solids, or less than two and one-half per centum of milk fats, it shall be deemed for the purpose of this act to be adulterated.

SEC. 4. Every person who shall be found guilty before a Justice Court of violating any of the provisions of this act, upon the first conviction shall be fined twenty dollars; and upon the second, and every subsequent conviction, shall be fined twenty dollars and be imprisoned in the county jail for ten days.

SEC. 5. All acts and parts of acts inconsistent herewith are hereby repealed.

#### MILK PRODUCTS.

The composition of milk and the different products derived therefrom is illustrated by the following table. (Wagner's *Jabres Beneht*, 1877):

	Water.	Fat.	Caseine.	Albumen.	Sugar.	Ash.
Whole milk.....	87.60	3.98	3.02	.40	4.30	.70
Cream.....	77.30	15.45	3.20	.20	3.15	.70
Skimmed milk.....	90.34	1.00	2.87	.45	4.63	.71
Butter milk.....	91.00	.80	3.50	.20	3.80	.70
Whey.....	94.00	.35	.40	.40	4.55	.60
Butter.....	14.89	82.02	1.97	.28	.28	.56
Cheese.....	59.30	6.43	24.22	3.53	5.01	1.51

## CREAM.

When milk is left at rest for a number of hours there appears upon its surface a whitish or yellowish layer of what is called cream, and which is really milk very rich in fat. The rise of cream is a physical phenomenon depending to a great extent upon the difference in the gravities of the fat globules and that of the milk in which they are suspended. The percentage of cream in milk is subject to great variation, depending largely upon the kind or breed of the cow, and influenced to a very considerable extent by the quality and quantity of food. In freshly drawn milk the percentage of cream is indirectly an index of the richness or poverty of the given milk. In the milk found in any city supply, a small percentage of cream although in many cases indicating, does not necessarily prove skimming. There are a variety of causes by which the amount of cream obtained from milk is greatly affected. In cold weather, the freezing of milk so changes the physical condition of the butter fat, that the thawed milk rarely if ever, produces more than a small percentage of its fat as cream. The repeated turning and returning of milk breaks the butter sacs and thus greatly reduces the percentage of cream. In fact, a given sample of milk containing when freshly drawn twelve or fifteen per cent. of cream, by several times turning, may have this percentage reduced to eight or ten per cent. This breaking of the sacs also so changes the physical condition of a portion of the fat, that it cannot be recovered by churning. This explains the practice of all large dairies of insisting on the immediate delivery of all milk before it has had time to set. From the fact that cream is an article of trade, samples are occasionally received for chemical examination.

The many samples analyzed during the past few years, have shown the great variableness in the composition of this substance, and proved that what is sold as cream is almost as uncertain in its composition as milk itself; in fact many samples are no better than extra rich milk. While this variation is in many cases due to insufficient cooling, and too short a time at rest, in others and the more numerous instances it is due to a hasty and careless drawing away of the skimmed milk. In the common method of separation, that of drawing away the skimmed milk from beneath the cream, it is a matter of considerable consequence whether the flow of skimmed milk ceases before, after, or at the point, the stratum of cream is reached.

The following analyses illustrate the uncertain composition of this substance:

	Water.	Solids.	Butter.	Caseine Sugar.	Ash.
Raised from milk.....	47.819	52.181	42.253	9.415	.513
Obtained from eaterer.....	57.339	42.661	29.367	12.787	.507
“ “ “ .....	76.075	23.925	13.863	9.574	.488
Sold as cream.....	55.691	44.309	36.029	7.728	.552
“ “ .....	73.001	26.999	19.762	6.678	.559
“ “ .....	70.221	29.779	22.288	6.977	.514
“ “ .....	76.181	23.819	15.740	7.480	.621

*Effect of Time and Temperature on the Quality of Cream.*—A prominent cause influencing the character of cream is the length of time which the milk is allowed to remain at rest together with the degree of temperature. In this regard Tisserand observes “that the nearer the milk is brought to the temperature of 0° Centigrade, the more quickly does the cream rise to the surface and the more complete is its separation, so that the yield of butter is thereby increased.” This fact is also explained by the following table giving the results of a series of experiments performed during the year 1880. During the progress of the tests the cans containing the milk were suspended in ice water. The table also gives the character of the skim milk:

HOURS AT REST.		Total Solids.	Water.	Fat.	Caseine and Sugar.	Ash.
6.	Cream.....	24.886	75.114	16.412	7.806	.668
	Skimmed milk.....	12.087	87.913	1.109	10.213	.705
24.	Cream.....	32.827	67.173	24.591	7.794	.542
	Skimmed milk.....	11.232	88.768	.482	10.023	.721
36.	Cream.....	32.541	67.459	23.483	8.481	.577
	Skimmed milk.....	11.023	88.977	.244	10.134	.745

Within a few years a great improvement has been made in the method of obtaining cream by the invention and gradual introduction of the centrifugal process for the separation of this product. From its dealing with warm milk together with the completeness of the separation, this process must necessarily sooner or later wholly take the place in large dairies of all other processes.

The value of the centrifugal process of separating cream is said to consist in saving more butter from milk than the ordinary method of separating milk. The claims for this process are: (Report Bureau Statistics of New Jersey, IV, 270.)

1. It will necessitate the use of less capital in the erection of dairy houses and fittings.
2. It will do away with the bother and expense of setting milk in pans for cream raising.
3. The cream can be separated from the milk as soon as withdrawn from the cow, and the cream churned immediately.
4. It opens up a new business in supplying fresh cream to consumers, who will not be slow in discovering its merits.
5. It will admit of the manufacture of sweet skim-milk cheese.
6. It offers economy in disposing of all the products of milk, fresh cream, fresh skim-milk, sweet butter-milk.
7. A more complete separation of cream from the milk than can be obtained by the ordinary process.
8. It admits of the quick and ready disposal of surplus milk left over on the hands of milk contractors, and thus is of assistance in diminishing the waste inseparable from the handling of milk and bringing it before the consumer.
9. It purifies the milk completely by throwing out the slime and all extraneous matter.

In an article entitled "Note on the efficiency of Centrifugal Machines for the separation of Cream from Milk, by Alfred Smetham, (Analyst, 1881,) the following table occurs giving the results of the examination of the cream from machines of two different makes:

	CREAM.				SKIM-MILK.			
	Water.	Fats.	Caseine Sugar.	Mineral Matters.	Water.	Fats.	Caseine Sugar.	Mineral Matters.
" LAVAL "								
Running 29½ gallons per hour..	61.46	33.44	4.56	.54	91.72	.29	7.22	.77
" DANISH "								
Running 43½ gallons per hour..	53.32	42.68	4.42	.58	91.82	.11	7.32	.75

In explanation of these machines the author concludes that "there can be no doubt that by the aid of these machines the cream may be practically all removed—far more completely, in fact, than by the ordinary method of setting; and as, moreover, the cream and skim

milk are perfectly fresh, it will be apparent that in large dairies (especially those which supply towns,) their use will become almost a necessity.

The actual saving in butter making, by reason of the more complete removal of the cream, will be very important, to say nothing of the indirect saving in the cost of pans and dairy fittings."

#### CONDENSED MILK.

The term Condensed Milk, as usually and more commonly applied, means milk which has been concentrated by evaporation and then thickened by addition of either cane or milk sugar. Owing to the great difficulty in obtaining milk of a uniform degree of richness, this substance has met with considerable use during the past few years. The following different kinds of condensed milk have been examined, they being at the time of the analyses the principal brands supplied in the city of Providence:

1. Anglo-Swiss, manufactured in Switzerland.
2. Anglo-Swiss, manufactured in England.
3. Anchor, manufactured by W. R. Lewis & Bros., Boston.
4. Eagle, manufactured by New York Condensed Milk Co.

The following table gives the results of the analysis of a sample of each of the above brands:

	Solids.	Water.	Fat.	Ash.	Sugar.	Caseine.
1. Anglo-Swiss.....	71.654	28.346	9.851	2.091	50.543	9.169
2. Anglo-Swiss.....	71.893	28.117	10.042	1.974	53.092	6.815
3. Anchor.....	73.124	26.876	10.656	1.935	54.169	6.304
4. Eagle.....	72.137	27.863	9.015	1.666	51.415	10.041

In this connection the following table, from a paper by Dr. N. Gerber, entitled, *Zusammensetzung verschiedener Kindernahrungsmittel*, (composition of different children's foods), *Zeitschrift für Analytische Chemie*, 1880, may be of interest:

	Water.	Ash.	Fat.	Caseine, etc.	Sugar.	ANALYST.	Year.
1. Anglo-Swiss Cond. Milk Co., in Cham..	26.14 24.70	2.05 2.11	9.92 6.02	11.90 9.77	50.80 57.40	Dr. N. Gerber. Dr. F. Soxhlet.	1875 1878
2. Swiss Cond. Milk Co., in Freiburg.....	25.75	2.15	10.66	13.41	48.02	Dr. N. Gerber.	1879
3. Gerber & Co., in Thun.....	26.10 25.10	2.12 1.94	9.46 6.83	11.73 10.46	50.59 55.67	Dr. N. Gerber. Fellenberg.	1878 1878
4. H. Nestlé in Vevey .....	25.28	2.03	8.62	10.25	53.82	Dr. F. Soxhlet.	1878
5. Norwegan Cond. Milk Co. in Christiania	32.80 30.08	3.01 2.01	9.80 7.54	13.13 9.02	41.25 51.35	Dr. N. Gerber. Dr. F. Soxhlet.	1877 1878
6. Milch condensations—fabrik in Kemp- ten (Bayern).....	31.30	2.56	10.19	12.53	43.42	Dr. N. Gerber.	1879
7. Wiener Fabrik (Hernals) Erzherz, Al- brecht.....	24.26	2.16	9.63	10.82	53.13	Dr. F. Soxhlet.	1878
8. Italian Cond. Milk Co. in Maitland.....	26.88	2.26	8.67	11.07	51.12	"	1878
9. New York Cond. Milk Co. (Gall Borden)	27.72	1.81	8.61	9.92	51.84	Dr. N. Gerber.	1877
10. Amerikan Cond. Milk Co. (Alderney)	23.38	1.56	9.23	10.22	51.57	"	1877
11. Hooker's Cream Milk (London).....	26.45	1.76	9.84	10.56	51.38	"	1879
12. West of England Cond. Milk Co., Swindon.....	28.89	1.62	10.45	12.56	46.48	"	1879

## SKIM MILK.

The composition and value of skim milk depends very largely upon the care and the method employed in the separation of the cream from the whole milk. This variation in composition is illustrated in the following table:

	Water.	Fats.	Caseine and Sugar.	Ash.	Total Solids.
After 6 hours.....	87.913	1.169	10.213	.705	12.087
After 24 hours.....	88.768	.482	10.023	.721	11.232
After 36 hours.....	88.977	.244	10.134	.745	11.023
Centrifugal process "Laval" machine.....	91.72	.29	7.22	.77	8.28
Centrifugal process "Danish" machine.....	91.82	.11	7.32	.75	8.18

As an article of food none can deny but that this material has a real value. As its chief distinction from whole milk is in the much smaller amount of fatty matters which it contains, while all the nitro-

genous, or flesh and bone forming constituents are left, its adaptability to the needs and wants of the young and growing appear doubly apparent. This fact together with the greatly reduced price at which it is offered for sale makes skim milk a valuable addition to the foods of at least the poorer classes. By the provisions of the Milk Law, the sale of this product is allowed under certain conditions. If it is sold for what it really is, with the knowledge of its true nature understood by both seller and buyer, no question of fraud can be raised; and it must be acknowledged better and cheaper to buy skim milk at three cents a quart, knowing it to be what is represented, than to pay six cents for what is called "whole milk," but which in reality is almost as badly skimmed.

#### BUTTER.

Fat is the most variable constituent of milk and is most quickly affected by the quality and quantity of the food. Chemically it is a mixture of several fatty substances, principally the insoluble glycerides of Palmitic, Stearic and Oleic acids and the soluble glycerides of the fatty acids, Butyric, Capryllic and Caproic. The presence of these soluble fatty acids in milk fat is the main characteristic difference between that fat and the other fats of animals. Indeed, it presents the only reliable method of distinguishing butter fat from admixtures or imitations.

In freshly-drawn milk this fat is disseminated through the fluid in the form of minute colorless globules, each enclosed in a thin membranous sac. These, being lighter than the liquid in which they are suspended, come to the surface, bringing also a small proportion of milky matter, in the form of cream. The process of churning, applied either to cream or to whole milk, consists in the breaking or rupturing of these butter sacs and the coalescence of the liberated fat. This fat with its admixed caseine and sugar, and added salt, constitutes what in the trade is known as butter. The great difference in the quality of commercial butter offers the widest range for adulteration; whilst its peculiar composition renders the detection of certain foreign substances as other fats, a matter of considerable labor and difficulty. Wanklyn (*Milk Analysis*, p. 59,) states that "The falsifications to which butter is liable are said to be the adulteration of it with organic substances like starch or gelatine, substances which are not fats; adulteration with fat which is not butter fat; undue moisture, and saltiness." At present it may perhaps be stated as true

that the only extended fraud practiced is the substitution in whole or more often in part, for the butter fat, a cheaper and an inferior kind of fatty matter, more often oleomargarine or butterine. While it may be perfectly true that artificial butter or oleomargarine is sweet and entirely free from harmful qualities and thus much less objectionable than the very cheap grade of natural butters, it is also equally true that its sale as butter is a cheat and a fraud, and such sale should be prohibited by law.

#### CHEESE.

Caseine is the nitrogenous constituent of milk, and includes under the general name several different albumenoids which go to make up the cheesy portion of milk. Caseine is almost completely insoluble in water but readily dissolves in alkaline solutions. In milk it is found partly in solution being held in that condition by reason of its combination with soda. During the souring of milk the lactic acid produced neutralizes the alkaline solvent and the caseine is thrown out in the form of flakes called "curd." The same change takes place when milk is coagulated by addition of any mineral acid, or when under the influence of rennet, as in the preparation of cheese.

Cheese as found in the market varies considerably in composition, the richness depending largely upon the source, method of manufacture, age, etc. The transformation or slow fermentation that cheeses undergo and commonly called the Ripening of Cheese, gives to the cheese its agreeable taste and flavor. This process is also attended by a partial decomposition of the fats with liberation of the fatty acids. In some cases there is probably an abnormal ripening giving rise to other products of a poisonous or otherwise injurious nature, otherwise it would appear impossible to explain the cause of sickness with poisonous symptoms attending the eating of certain samples of cheese.

The following table gives the analyses of the more common cheeses found in trade:

NAME.	Water.	Caseine.	Fat.	Milk Sugar.	Ash.	
Stilton.....	20.27	33.45	43.98	.....	2.20	Encyc. Britt.
Cheshire.....	32.59	26.06	32.51	4.53	4.31	
Cheddar.....	30.32	28.18	35.53	1.66	4.31	
Double Gloucester.....	33.41	27.75	32.09	2.23	3.92	
Single Gloucester.....	36.50	25.75	28.75	4.68	4.32	
Wiltshire.....	39.22	34.22	19.26	2.28	5.02	
Dunlop.....	38.46	25.87	31.86	.....	8.81	
Ord. Skim-milk.....	39.43	30.37	27.68	0.22	2.90	
American.....	27.29	25.87	35.41	6.21	5.22	
Dutch (Gouda).....	36.10	29.43	27.54	6.94	.....	
Camembert.....	51.94	18.90	21.05	4.40	4.71	
Parmesan.....	27.56	44.08	15.95	6.69	5.72	
Gruyère.....	40.00	31.50	24.00	1.50	3.00	
Brie.....	45.25	18.48	25.73	4.94	5.61	
Rouqueford.....	34.55	26.52	30.14	3.72	5.67	
Neufchâtel cream cheese.....	36.58	8.00	40.71	15.80	0.51	
American.....	23.49	36.21	34.92	.....	5.24	A. B. Griffiths.
".....	28.20	37.01	30.18	.....	4.51	"
".....	26.55	35.58	33.85	.....	3.90	"
".....	31.81	36.10	28.68	.....	3.40	"
Cheddar.....	36.64	25.38	35.44	.....	4.54	Cooley.
Double Gloucester.....	35.61	21.76	38.16	.....	4.47	"
Skim.....	43.64	45.64	5.76	.....	4.96	"

Aside from the somewhat rare use of arsenic and other violent poisons on the outside of cheese to prevent the attacks of insects, and the possible addition of injurious if not poisonous coloring materials in the preparation of sage cheese, the only sophistication practiced to any extent is the admixture of lard in the manufacture of skim milk cheese. This fraud is a very extensive one and is rapidly increasing, there being in the State of New York "about twenty-five factories, turning out seven hundred lard cheeses a week." (Dr. Newton in V. Rep. State Board Health, New Jersey.)

#### COMPARISON OF COW'S MILK WITH THE MILK OF OTHER ANIMALS.

Mare's milk is rich in sugar and poor in fat and caseine. It readily ferments; sp. gr. 1.034-1.045. (Johnson's Encyc.)

Asses milk resembles mare's milk, being rich in sugar and poor in the other constituents; sp. gr. 1.023-1.035. It readily sours, and easily undergoes fermentation. (Johnson's Encyc.)

Ewe's milk is thickish, white, of agreeable taste and smell, and very rich in fat and caseine; sp. gr. 1.032-1.044. (Johnson's Encyc.)

Goat's milk is white, of insipid sweetness, and peculiar odor; sp. gr. 1.034-1.036. On coagulation its caseine forms thick clots. It is very similar to cow's milk in composition. (Johnson's Encyc.)

Sow's milk is extremely rich, containing nearly fifty per cent. more nutritive matter than is found in that of the cow. Color, white without any bluish shade; flavor, very rich, resembling that of the skim-

mings of cow's milk; reaction very faintly alkaline; sp. gr. 1.041. (C. A. Cameron, Chem. News, XIX.)

Canine milk is rather thick, and becomes thicker on warming, when it does not coagulate; sp. gr. 1.033 to 1.036. (Johnson's Encyc.)

Elephant's milk. As the result of the examination of samples of this kind of milk in March, 1880, Dr. Chas. A. Doremus, of New York, gives the following characteristics, (Jour. Amer. Chem. Soc., 1881): "It is evident from these analyses that the milk approaches the composition of cream, yet it did not have the consistency of ordinary cream. A cream even raised upon it. Under the microscope the globules presented a very perfect outline, and were beautiful, even in size and very transparent. The cream rose quickly, leaving a layer of bluish tinge below. The milk was pleasant in flavor and odor, and very superior in these respects to that of many animals, such as goats or camels, and quality equal to that of cows. Nor did the milk emit any rank odor on heating." "The fat has a light yellow color, resembling olive oil, is very pleasant in odor and taste, is liquid at common temperatures, but solidifies at 64° Fah." •

The following table contains the analysis of samples of milk from many of the common animals, as given by various authorities:

KIND.	Water.	Solids.	Fat.	Caseine and Albumen.	Sugar.	Ash.	
Cow.....	86.42	13.58	3.13	4.83	4.77	.60	.....
Goat.....	84.49	15.51	5.68	3.51	3.69	.61	Dr. Cameron.
Goat.....	86.80	13.20	3.32	4.02	5.28	.58	Dr. Voelcker.
Ewe.....	83.23	16.77	5.13	6.97	3.94	.71	Dr. Cameron.
Ewe.....	82.22	17.78	5.72	11.12		.94	Macadam.
Mare.....	90.43	89.57	2.43	3.33	3.27	.52	.....
Mare Ar. 14.....	90.31	9.69	1.05	1.95	6.28	.39	Dr. Cameron.
Ass.....	89.01	10.99	1.85	3.56	5.04	.52	Dr. Cameron.
Ass.....	91.95	8.05	.11	1.82	6.08	.34	Dr. Voelcker.
Sow.....	81.80	18.20	6.00	5.30	6.07	.83	Dr. Cameron.
Sow.....	82.93	17.07	6.88	6.89	2.01	1.29	Sintner.
Camel.....	86.94	13.06	2.90	3.67	5.78	.66	Dragendorff.
Canine.....	77.26	22.74	10.64	9.17	2.49	.44	Szbotin.
Canine.....	77.37	22.63	10.11	10.18	2.15	.39	Szbotin.
Elephant.....	66.697	33.303	22.070	3.212	7.392	.629	Dr. C. A. Doremus.
Buffalo.....	80.640	19.360	8.450	4.247	4.518	.845	.....
Hippopotamus.....	90.43	9.57	4.51	4.40		.11	.....

## CONCLUSION.

The value of milk as an article of food is so well known and so universally acknowledged as to need but brief mention. It is the typical food containing, as it does, all the elements necessary to a vigorous healthy growth. Compared with other foods its true value seems somewhat marvellous; its want of concentration being apparently the only drawback to its perfect substitution. In a previous portion of this article it has been seen in how many, and in many cases in what trifling and apparently insignificant ways, the food value of milk may be injured if not destroyed. These taken in connection with the peculiar properties of this fluid, its great susceptibility to odors and vapors, and the ease and rapidity with which it absorbs and carries germs of disease, must render the failure to properly care for the milk and the neglect to apply judgment and common sense in its handling, a very serious offense; and in all cases when milk is to constitute the sole living of a child it ought to be the first and imperative duty of the parent to ascertain the nature and quality of the food and the method of feeding as well as the condition and health of the animal from which the milk is to be obtained. The following abstract from a discussion in *Scientific Farmer*, 1878, gives a comparison as regards food value of milk and beef:

"The average analyses of thirty-four samples of pure milk by S. P. Sharpless, of Boston, offered the following results:

Specific gravity.....	1030.	per cent.
Cream volume.....	13.8	"
Water.....	85.85	"
Sugar.....	4.82	"
Caseine.....	4.06	"
Fat.....	4.62	"
Ash .....	.65	"

"According to Dr. Lankester, the composition of lean beef is:

Water.....	50.0	per cent.
Fat.....	30.0	"
Fibrine and albumen.....	8.0	"
Gelatine.....	7.0	"
Mineral.....	5.0	"

"While Prof. Way gives for a particularly lean sample :

Water.....	53.81	"
Fat.....	3.10	"
Albuminous matter.....	24.06	"
Other substances.....	19.03	"

"If from these data we construct a table, we find that the chemical substances of one pound of milk and beef have about the following relations:

	One pound of milk.	One pound of beef.
Water.....	13.73 oz.	8.0 oz.
Flesh-forming constituents, (nitrogenous).....	.65 oz.	2.4 oz.
Heat-producing constituents (carbo-hydrates).....	1.51 oz.	4.8 oz.
Mineral matter.....	.10 oz.	.8 oz.
	<hr/> 15.99 oz.	<hr/> 16.0 oz.

"This is to say that, chemically, 3.7 pounds of milk is the equivalent of 1 pound of beef in flesh-forming or nitrogenous constituents, and 3.17 pounds of milk is the equivalent of 1 pound of beef in heat-producing elements or carbohydrates.

"In a calculation, by Dr. Frankland, of the weight of various articles of diet required to be consumed to furnish the force requisite to raise a man of one hundred and forty pounds' weight to the height of ten thousand feet, 8 pounds of milk and 3.5 pounds of lean beef are given as the figures.

"In another table, furnished by Letheby, the amount of food necessary to be consumed to furnish the necessary nitrogenous constituent for a day's diet is given as 72.4 ounces for milk and 15.6 ounces for lean meat. In the table of the average daily diet required for active labor, we find 391 grains of nitrogen and 6,283 grains of carbon, an amount supplied by about  $11\frac{1}{2}$  pounds of milk or about  $3\frac{1}{2}$  pounds of beef. \* \* \* \* We must therefore assume, from the data offered, that the relative values of beef and milk, as human food, are as  $3\frac{1}{2}$  to  $11\frac{1}{2}$  or as 1 to  $3\frac{1}{2}$ . If milk is at 8 cents a quart then it is the equal in food value to beef at  $12\frac{1}{2}$  cents a pound; and, *vice versa*, when beef is 25 cents a pound, then milk should be 16 cents a quart, calculated on its food value. We thus see that, at the ruling prices, milk is certainly one of the cheapest, if not the cheapest, food that can be furnished the family, while all experience is in favor of its healthy qualities."

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# PARKS AND OPEN SPACES IN CITIES.

BY

FRANKLIN C. CLARK, A. M., M. D.

FELLOW OF THE R. I. MEDICAL SOCIETY, PROVIDENCE.

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## PARKS AND OPEN SPACES IN CITIES.\*

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The time has at length come when we can no longer treat sanitary questions with indifference, and sit with folded arms and let motives of self-interest prevail over every consideration for the welfare of humanity; when we can no longer shut our eyes to the fact, that, by the neglect of the proper precautions, we do but sow the seeds of disease, from which not only ourselves, but future generations, must reap in sorrow. Just as we gather the good fruits of bygone ages, we suffer from the errors of older civilizations, just so surely will our descendants be benefited or injured by the heritage we bequeath them; whatever we may do for their amelioration obtains to our own advantage. The wise man is he who provides against the future, foresees danger and meets it with the proper remedies.

“A great book” says a Greek adage, “is a great evil.” A great city teems with no less evil. The larger the city the greater the social pressure which is brought to bear upon each individual. Society is governed by a series of compromises which are designed to subserve to the benefit of the largest numbers. The wiser those compromises, the more tolerable the life of the average citizen. These mutual concessions are, for the most part, one sided; the steps of reform following those channels which subserve certain ends; in other words, the individual must conform to the thinking of the majority. An occasional minority report, however, often corrects the mistakes of the majority. An urban life is artificial; the denser the population the more must the individual suffer for the good of society. Material prosperity is greatly preferred to the health of the community. The dwellers in large cities often suffer more for the want of fresh air than for anything else, that which neither care nor money can obtain, unless the evils of over-crowding are obviated. The larger the city and the less number of breaks in its continuity, the more apparent are

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\* Extract from an address before the Public Park Association, Providence.

these evils of over-crowding. It has been well said that these evils more than keep pace with the growth of the community. In London it was observed by a celebrated physician, that nobody but butchers' boys are in the enjoyment of perfect health. The very animals illustrate this but too well. A dog's life is miserable in a huge town. Then, again, work is more difficult, play is less enjoyed, all the natural conditions of life are so changed that health is an exception rather than the rule. Many, however, favored by fortune, may have country seats where their families spend that part of the year, when a city-life is particularly burdensome. But the case remains the same; for while hundreds may possess these advantages the conditions of thousands who remain are made less bearable, especially from the fact that those living partly out of town will sympathize less, if influential persons, (and they generally are,) with the stay-at-homes. So the sanitary condition of the mass of the population, the people, the workers, the creators of wealth, will remain unimproved, unless over-crowding is prevented or remedied.

Over-crowding, then, is the chief evil of large cities. A big city is, at best, an unwieldy mass; it being thought, perhaps, that the more compact it is, the more easily can it be governed. However, the advantages of wealth and refinement are more than counterbalanced by this excessive over-crowding. As a consequence every vacant space, every tract of unoccupied ground, is made available for building purposes. The whole city becomes a pile of buildings, without a break except by way of narrow lanes, and somewhat wider streets, just large enough for the accommodation of the inhabitants, and especially for business. Add to this the thousand and one sources of atmospheric contamination, through noxious trades, various manufactures, and the consequent impurities of drainage, sewerage, and refuse matters incident to all dense populations, and we have before us a fertile cause of disease, a constantly increasing focus of epidemics. Count Rumford estimated that there were thousands of chaldrons of coal held in suspension in the atmosphere of London. A similar character has since been found in the atmosphere of Paris. Hence in all huge cities the change from workshop to home by the vast majority of the laboring classes, is but a change in degree. The home atmosphere may be less stifling and vitiated. But that is all.

If we cannot, then, prevent cities from growing, we can direct their increase into the proper channels, furnish to a large extent that great *desideratum* of human existence—fresh air, and the removal of impure. In speaking of the impurities of large cities, says Sir Ar-

thur Helps, "The main object is to see what can be done to render this vast agglomeration of animate and inanimate beings less embarrassing and injurious. The first thing which must occur to almost every mind is the necessity for preserving open spaces, and even of creating them."

The ideal city, in a sanitary point of view, has never yet been built. One or two Utopian schemes have been proposed; but as the speculations of their authors have never been adopted, our sanitary city belongs to the dim future. If we cannot, then, make sweeping reforms, we can effect changes which will show marked improvement. Because advantage is not seen immediately the majority are slow to appreciate the value of sanitary measures until frightened out of their apathy. And the first thing they do is to cast opprobrium upon their ancestors for their neglect in such matters, forgetting they are but following in their footsteps. Did persons pay as much regard to the lining of their stomachs and lungs, as to the lining of their purses, much of the misery which a heavy purse is supposed to obviate, would be prevented; so that any reformer, in order to further his object, no matter how valuable it may be, for the most part, must appeal to self-interest to gain for it the necessary attention. Reforms are more measured for their money-value, or money-saving capacity, than for their capability of preserving and prolonging life. "*Will it pay?*" not *Will it conserve to the happiness of the human race?*

A city, therefore, to be healthy, must conform as far as possible to the characteristics of the country. And we say here, not improperly, that if cities were not continually recruited from the country, the bad health of urban communities would be patent to all. It has, accordingly, become an axiom among sanitarians, that cities to be healthy must afford their inhabitants as much fresh air as possible, by means of wide streets, and by other numerous breaks in their continuity through public parks and gardens, commons, squares, and vacant open spaces of all kinds. The more the better. In this way only can the evils of over-crowding be remedied.

After admitting the value of these interior open spaces in dense populated cities, it is still considered by some, that their situation is entirely optional, arbitrary, dictated according to fancy, convenience, or cheapness; in fine they may occupy lands good for nothing else, waste places, and wonderful to say! can be exchanged for others, or even destroyed, when they are in the way of business interests or begin to be encircled by the extending limits of the city. The true value of such vacant spaces cannot be fully understood, to say the

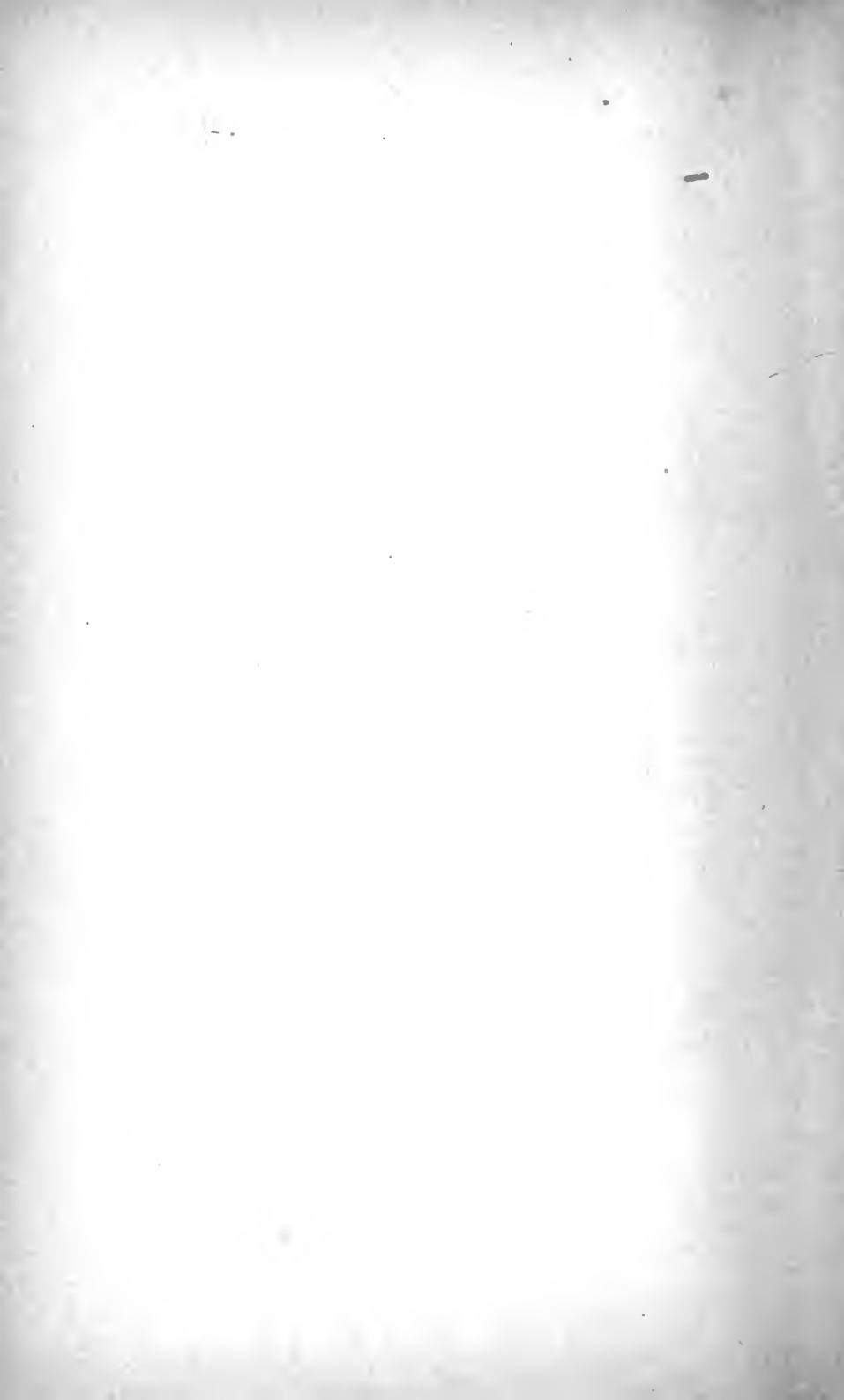
least; for everything, it is argued, must give way to progress, the progress of modern times. So long as the body politic keeps moving it is interpreted progress. But true progress is to be measured by the result; and many times it is not perceptible to the first generation.

Ought central open areas be changed at pleasure, or even destroyed? Ought the conditions of life thus to be rendered less and less easily fulfilled? Ought life itself to be made less endurable by the vote of the majority in the cause of self-interest? Once an epidemic disease was generally believed, even by intelligent persons, to be the exponent of the wrath of some demon, devil, or divine power, to appease whom was to stay the plague. We may find traces of this spirit still lingering among us, or, at least, it appears to crop out whenever self-interest is at stake. To a similar spirit is due the opposition which central open spaces have met with in modern cities; and though this is corrected in some instances, it is only with great difficulty, and much expense,—at a late day when the actual need of open spaces begins to be apparent. These parks, under the name of commons, are the heritage of our ancestors. How few we see preserved intact, not to speak of those created!

Our Cove basin, which has now become the bone of contention between the sanitary interests and the moneyed class, must be placed, when properly cleansed, in the category of interior open spaces which conserve to the health of the community, being an open area in the midst of a great centre of population. It constitutes in a large degree one of the respirators of Providence. But because these "lungs" are at the present contaminated, and contaminating, in a clogged, choked, congested state from causes purely preventable, it does not follow that the cove should be condemned on that score, and given over to unsanitary purposes. After remedying these objectionable features this basin will conform to all the conditions of a health giving central vacant area, and our foresight will receive the gratitude of future generations. The impure air gravitating into this valley will be removed; a constant renewal of fresh air insured. At no time will the atmosphere in that locality remain stagnant. The broad sheet of water may be made to add to the advantages of the open space, acting upon wholly hygienic principles—absorbing from the overlying atmosphere a large proportion of its impurities, and in its ebb and flow, in turn, purifying itself. Trees, herbage and other vegetation which may perchance, flourish in its vicinage, assists this natural process of purification.

In cities there has always been a conflict between nature and indi-

vidual selfishness. But in the end the law of nature must prevail; and individual effort, to be successful, must be in consonance with that law. Sir Arthur Helps puts into the mouth of one of his characters, "I always think it a cruel thing for the future population of this country [England] when any crown [public] land is let for building purposes. That land should be held by the public for the public." And again, "I wonder if any benevolent and far-seeing man had long ago bought and dedicated to the public a vacant space of ground in the midst of, or near to, a great town, and had bequeathed money to maintain this vacant space in due neatness and order, whether his bequest would have remained intact. . . . Commissioners of some kind or other would have been nearly sure to seize upon this wise bequest, and to devote it to alien purposes. Yet it may be fairly questioned, whether any use that could be made of it, such as a church, a palace, or a school (yea, or a railway station,) being built upon it, could have equalled in real utility, and in the benefit to be conferred upon mankind, that of leaving the open space alone, and so making the most of it, though indirectly, for the high purposes of health, education, or religion. The future would have been nearly certain to be sacrificed to the present; for the spoliators would probably be deficient in those powers of imagination which, if duly exercised, would teach men that one of the grandest objects of benevolence, is to provide for the future these vacant spaces in the midst of, or neighboring to, the great centres of population." I have quoted this passage thus at length because it so well harmonizes with the present condition of affairs in our own city.



## APPENDIX.

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### THE LAWS OF RHODE ISLAND.

IN RELATION TO

### Vital Statistics, the State Board of Health, and Marriage.

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#### PUBLIC STATUTES CHAPTER 85.

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##### OF THE REGISTRATION OF BIRTHS, DEATHS AND MARRIAGES.

SECTION 1. The town clerks of the several towns, or any person whom the board of aldermen of any city, or the town council of any town may appoint for that purpose, shall obtain chronologically record and index, as required by the forms prescribed by section three of this chapter, all information concerning births, marriages and deaths occurring among the inhabitants of their respective towns; and on or before the first Monday in March, annually, shall make duly certified returns thereof to the secretary of the state board of health for the year, ending on the thirty-first day of December next preceding, accompanying the same with a list of the persons required by law to make returns to them, who have neglected to do so, and with such remarks relating to the object of this chapter as they may deem important to communicate.

SEC. 2 The Secretary of the state board of health shall receive the returns made in pursuance of the preceding section, and annually, make a general abstract and report thereof, in form as prescribed by section three of this chapter, and publish not exceeding one thousand copies thereof. Said returns, after such report is prepared, shall be deposited in the office of the secretary of state, who shall cause the same to be arranged, full alphabetical indices of all the names to be made, and the whole to be bound in volumes of convenient size, and carefully preserved in his office.

SEC. 3. The blank forms required to carry out the provisions of this chapter, shall, on application, be furnished by the secretary of the state board of health to clergymen, physicians, undertakers, town clerks, clerks of meetings of the Society of Friends and other persons requiring them, substantially as follows: The record of a birth shall state the date and place of birth, name and sex of the child, whether born alive or still-born, the name and surname, color, occupation,

residence and birthplace of the parents, and the time of recording, so far as the same can be ascertained. The record of a marriage shall state the date of the marriage, place, name, residence and official station of the person by whom married, names and surnames of the parties, age, color, occupation and residence of each, condition, that is whether single or widowed, what marriage, that is whether first, second, third, or other marriage, the occupation, birthplace and name of their parents, and the time of recording, so far as the same can be ascertained. The record of deaths shall state the date of death, name and surname of deceased, the sex, color and condition, whether single or married, age, occupation, place of death, place of birth, names and birthplace of parents, disease, or cause of death, and the time of recording, so far as can be ascertained.

SEC. 4. Every meeting of the Society of Friends, clergymen, and all others authorized to join persons in marriage, shall make a faithful record of every such rite performed by them, in manner and form aforesaid, and return the same for the last preceding month, on or before the second Monday of every month, to the town clerk of the town in which such rite shall have been performed; and no marriage shall be solemnized until the parties shall have signed and delivered to the person about to solemnize it, or to the clerk of a meeting of the Society of Friends, a certificate containing the information required for the record of a marriage, as prescribed by this chapter.

SEC. 5. The town clerk of every town shall annually, in the month of January, collect the information required by this chapter, in relation to all children born in the town during the year ending on the thirty-first day of December next preceding.

SEC. 6. Whenever any person shall die, or any still-born child shall be brought forth in this State, the physician attending at such bringing forth or last sickness, if any physician so attended, shall within forty eight hours after such death or bringing forth, leave with the family, if any, or person having the care of the deceased, or the person bringing forth such still-born child, or give to the undertaker or person who conducts the funeral, a certificate stating in case of a death the name of the deceased, the date of the death, and the disease or cause of the death, and in case of the bringing forth of a still-born child, the date and the cause of such child being brought forth still-born.

SEC. 7. Every town council may appoint a sufficient number of persons to act as undertakers, removable at the pleasure of such council.

SEC. 8. No undertaker or other person shall conduct a funeral, or bury or deposit in a tomb, or remove from this State or otherwise dispose of the remains of any deceased person or still-born child, unless he shall first obtain the physician's certificate required by section six of this chapter, if a physician was in attendance upon such person who has deceased, or the person bringing forth such still-born child, and shall return the same, together with his own certificate of the information required by section three of this chapter, to the town clerk of the town where such death or bringing forth took place.

SEC. 9. Any town may make ordinances, more effectually to attain the objects herein contemplated.

SEC. 10. The town clerks, or persons appointed as aforesaid, shall receive for each record of a death made and returned as required by law, and for each record of a marriage made and returned as required by law, twenty cents, to be

paid to them out of their respective town treasuries: *Provided*, that the yearly compensation to be paid out of the town treasury as aforesaid, to any one town clerk or person appointed as aforesaid, who shall perform the duties prescribed by this chapter, shall not be less than five dollars. Undertakers and others making returns of deaths as required by section eight of this chapter, shall receive for each full report of a death made to the town clerk, five cents, in the cities of Providence and Newport, and ten cents in the other towns of the State.

SEC. 11. Every clergyman, physician, undertaker, town clerk, clerk of any meeting of the Society of Friends, or other person, who shall wilfully neglect or refuse to perform any of the duties imposed on, or required of him, by this chapter, shall be fined not exceeding twenty dollars for each offence, one half thereof to the use of the town in which the offence shall occur, and one half thereof to the use of the person who shall complain of the same.

SEC. 12. Every clergyman, physician, coroner, undertaker or clerk of any meeting of the Society of Friends, shall cause his name and residence to be recorded in the town clerk's office of the town where he resides.

SEC. 13. No letters of administration or letters testamentary shall be granted by any court of probate, upon the estate of any person, until the death of such person, or the facts from which the same is presumed, shall be duly certified, as near as may be, to the town clerk, in order that the same may be duly registered according to the provisions of this chapter.

SEC. 14. The town clerks of the several towns, the city clerk of the city of Newport, and the city registrar of the city of Providence, shall have the custody of all records of births, deaths and marriages of their respective towns, whether made under the statutes now in force or any former statute, and a certificate signed by them, certifying that any written or printed statement of any marriage, birth or death is a true copy of the record in their custody, shall be admitted as evidence of such marriage, birth or death.

SEC. 15. Births, marriages and deaths of non-residents shall be distinguished from those of residents in the returns, by being arranged separately.

SEC. 16. The secretary of the state board of health may, from time to time, vary the forms of returns, and require such additional information as he may consider necessary to accomplish the object of this chapter.

SEC. 17. The town clerks or other officers appointed under this chapter to collect, record and return the births in the several towns, shall receive fees therefor as follows: For making record and return of these facts as required by law, twenty cents each for the first fifty entries in each calendar year, and ten cents each for each subsequent entry and return; to be paid by the town in which the birth is recorded.

SEC. 18. The town clerks of the several towns, or other persons appointed under this chapter to collect the births in the several towns, shall annually in the month of January, collect the facts concerning the births within their respective towns, required by this chapter; and shall so far as practicable, at the same time collect the names of all persons liable to be enrolled in the militia, as required by title thirty-four; and the census of all persons between the ages of five and fifteen years inclusive, as provided by chapter fifty; and shall receive therefor such compensation as the town council or the board of aldermen of their respective towns or cities shall determine: *Provided* that the city of Provi-

dence shall be exempt from so much of the provisions of this section as relates to the collection of the statistics of births.

SEC. 19. Blanks for the foregoing purposes shall be furnished on application therefor, on or before the first day of December in the year preceding, by the state board of health, for the collection of births, by the adjutant-general, for the taking of the enrolled militia, and by the commissioner of public schools, for the census aforesaid.

SEC. 20. The person or persons who shall discharge the duties required by section eighteen of this chapter, if other than the town clerk, shall make full return thereof to the town clerk of his or their town, on or before the tenth day of February next following.

SEC. 21. The returns required to be made by clerks of the supreme court, in relation to divorces, to the secretary of the state board of health, or a prepared abstract thereof, shall be published in the annual report on the births, marriages and deaths in the state.

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## CHAPTER 198.

### OF DIVORCES.

SECTION 5. The clerks of the supreme court in the several counties, shall make returns to the secretary of the state board of health, on or before the first day of March, in each and every year, for the year ending on the thirty-first day of December preceding, of all the applications for divorce, showing the number, the number granted, and the causes which are given for the application, but without the names of the parties, in accordance with the blanks which shall be furnished them by the secretary of the state board of health.

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## CHAPTER 83.

### OF THE STATE BOARD OF HEALTH.

SECTION 1. The governor, with the advice and consent of the senate, shall appoint six persons, two from the county of Providence, and one from each of the other counties, who shall constitute the state board of health, one of whom shall be appointed in each year for the term of six years from the first day of July. Any appointment to fill a vacancy shall be for the remainder of the term. Of the persons so appointed, at least three shall be well educated physicians and members of some medical society incorporated by the state. The governor may remove any member for cause, at any time, upon the written request of two-thirds of the board.

SEC. 2. The board shall take cognizance of the interests of life and health among the citizens of the state. They shall make investigations into the causes of disease, and especially of epidemics and endemics among the people, the sources of mortality, and the effects of localities, employments, conditions and circumstances on the public health, and shall faithfully do all in their power to ascertain the causes and the best means for the prevention of diseases of every

kind in the state. They shall publish and circulate, from time to time, such information as they may deem to be important and useful for diffusion among the people of the state, and shall investigate and give advice in relation to such subjects relating to the public health, as may be referred to them by the general assembly, or by the governor when the general assembly is not in session.

SEC. 3. The state board of health shall also investigate the subject of diseases among cattle or other animals.

SEC. 4. The board shall meet in the city of Providence once in three months, and as much oftener as they may deem necessary. No member of the board, except the secretary, shall receive any compensation for his services; but the actual personal expenses of any member, while engaged in the duties of the board, shall be paid by the state.

SEC. 5. The board shall elect a well qualified physician as their secretary, who shall be *ex-officio* a member of the board, the commissioner of public health, and state registrar, but he shall not be permitted to vote on any question in which he is personally interested, or be entitled to any additional compensation for mileage or expenses.

SEC. 6. The secretary of the said board shall make inquiry from time to time, of the clerks of town and local boards of health, and practicing physicians, in relation to the prevalence of any disease, or knowledge of any known or generally believed source of disease, or causes of general ill-health, and also in relation to the proceedings of the said boards of health, in respect to acts for the promotion and protection of the public health, and also in relation to diseases among domestic animals in their several towns and localities respectively; and the said clerks of town and local boards of health, and the said practicing physicians, shall give such information, in reply to said inquiries, of such facts and circumstances as shall have come to their knowledge.

SEC. 7. The secretary shall perform and superintend the work prescribed for said board by law, and such other duties as the board may require, and he shall receive such salary not in excess of twelve hundred dollars annually, as the board may determine. He shall hold his office during the pleasure of the board, and may be removed at any regular meeting, by a majority vote of the members thereof.

SEC. 8. The governor shall provide a suitable office for the board in the city of Providence, and the actual expenses of the board and of the members thereof, when certified by the chairman and approved by the governor, shall be paid from the state treasury.

SEC. 9. The board shall make a report in print to the general assembly, annually, of its proceedings during the year ending on the thirty-first day of December next preceding, with such suggestions in relation to the sanitary laws and interests of the state as they shall deem important.

## SYNOPSIS OF THE LAW OF MARRIAGE IN RHODE ISLAND.

## TITLE XX, CHAPTER 163 PUBLIC STATUTES.

SECTIONS 1, 2 and 3 show what kindred persons cannot marry, and declare marriages within prohibited degrees, null and void.

SECTION 4 makes an exception in favor of Jews, within the degrees of affinity or consanguinity allowed by their religion.

SECTION 5 declares the marriage of persons having a husband or wife living, and of idiots or of lunatics, absolutely void.

SEC. 6. "Any ordained minister or elder of any religious denomination, who shall be *domiciled* in this state, and either justice of the supreme court, may join persons in marriage in any town of the state." (It will be seen that clergymen from other states *cannot solemnize marriages* in Rhode Island. Marriages solemnized in Rhode Island, by clergymen living out of the state, are null and void.)

SECTION 7 defines what shall be understood by the term "religious denomination," within the meaning of the preceding section.

SEC. 8. Wardens in the town of New Shoreham, may join persons in marriage in said town.

SECTION 9 provides that no minister, elder, magistrate or warden shall join persons in marriage, unless such persons, if residents of this state, shall first present a certificate properly executed and signed by the town or city clerk or city registrar of the town or city in which *each of such persons shall respectively reside*, and if not residents of this state, then from the town or city clerk or registrar of the town or city in which the marriage shall be solemnized, to the effect that the said town or city clerk or registrar has *duly recorded the intention* of marriage between the parties named in the certificate, and no town or city clerk or city registrar shall issue such certificate to any minor or person under guardianship, unless the consent in writing of the parent or guardian shall have been first obtained thereto, provided, however, such certificate may be issued to a female over eighteen years of age, who has no parent or guardian living in the United States. (The legal minority of both sexes terminates at the age of twenty-one.)

SECTION 10 provides that every society of Friends, and every person authorized to join persons in marriage shall certify upon the certificate required in section nine of this chapter, the time when and the place where the marriage shall have been solemnized by him, and shall on or before the second Monday of every month return the certificate of every marriage solemnized by him during the last preceding month, to the clerk or registrar of the town or city in which such rite shall have been performed.

SECTION 11 forbids the solemnization of the marriage ceremony, by any person, when lawful objection is made thereto in writing, until such lawful objection be removed.

SECTIONS 12, 13 and 14 provide that any person who shall join persons in marriage contrary to, or in violation of, chapter 163 of the Public Statutes, shall be imprisoned not exceeding six months, or fined not exceeding one thousand dollars.

SEC. 15. The solemnization of marriage shall be in the presence of two witnesses at least, besides the minister, elder or magistrate officiating.

SECTION 16 relates to marriages among Quakers or Friends, and among Jews, making them valid if in accordance with the forms, rites and ceremonies of the same respectively.

SECTION 17 provides that any persons joined in marriage in this state, who have neglected to comply with the law as set forth in the preceding sections, shall be imprisoned not exceeding six months, or fined not exceeding one thousand dollars.



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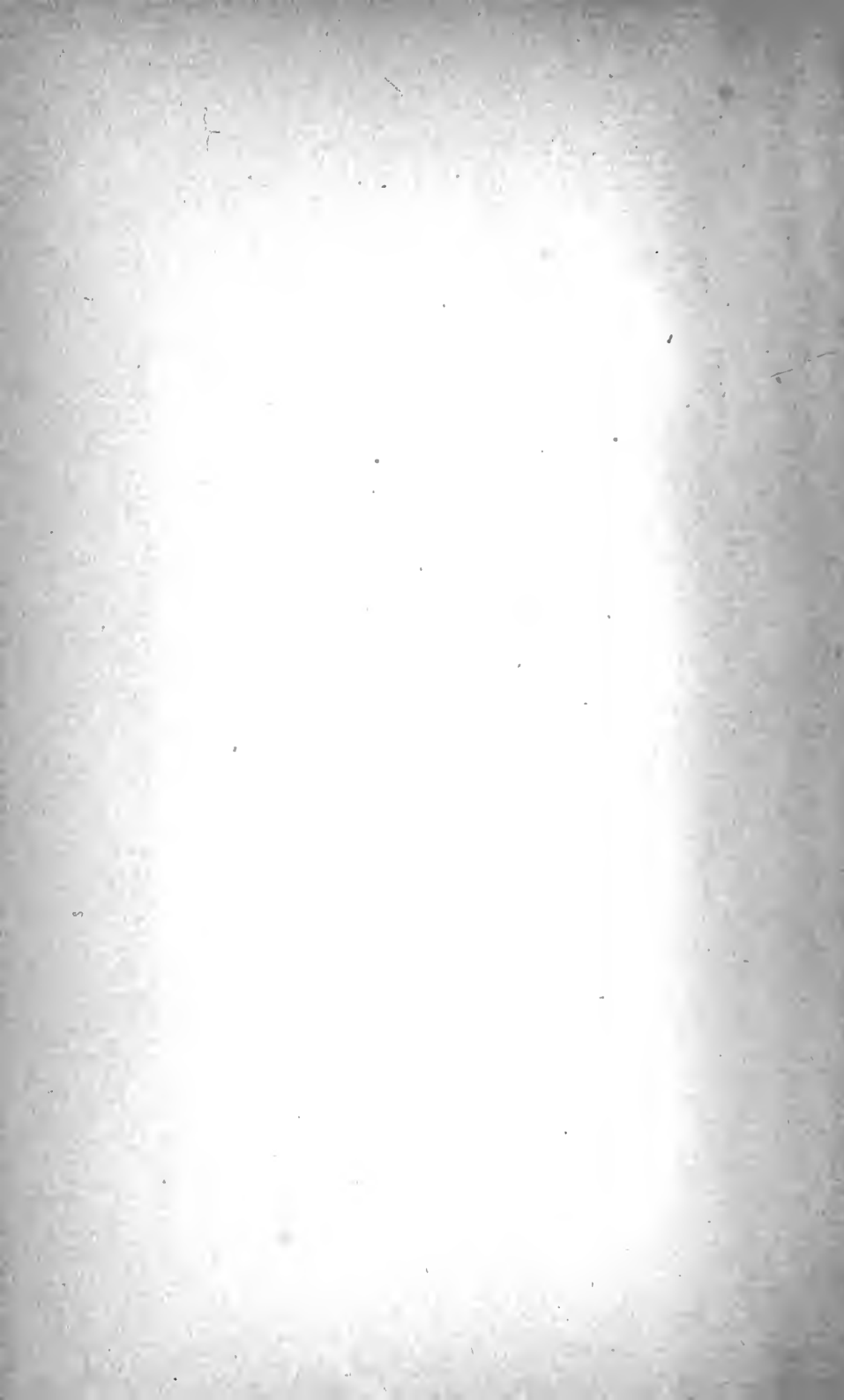
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